

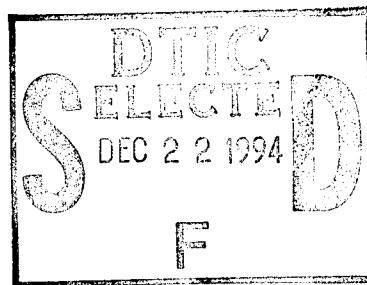
REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	20/01/94	MONOGRAPH
4. TITLE AND SUBTITLE AIRLAND BATTLE TACTICS: AN ANALYSIS OF DOCTRINE AND EXPERIENCE (U)		5. FUNDING NUMBERS
6. AUTHOR(S) MAJ C. WILLIAM ROBINSON, USA		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) SCHOOL OF ADVANCED MILITARY STUDIES ATTN: ATZL-SWV FORT LEAVENWORTH, KANSAS 66027-6900 COM (913) 684-3437 DSN 552-3437		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES		
12a. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED		12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)
SEE ATTACHED



14. SUBJECT TERMS OPERATIONS JOINT AIRPOWER			AIRLAND BATTLE DOCTRINE CLOSE AIR SUPPORT AIR CONTROL	AIR TO GROUND INTERDICTION BATTLEGROUP	15. NUMBER OF PAGES 66
16. PRICE CODE					
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED		

ABSTRACT

AIRLAND BATTLE TACTICS: AN ANALYSIS OF ~~US ARMY AND US AIR FORCE~~ DOCTRINE AND EXPERIENCE by MAJ Charles Wm. Robinson, USA, 62 pages.

This monograph examines whether US Army doctrine and US Air Force doctrine are compatible. In particular, this study assesses the current Air/Ground Operating System and the offensive air support it provides to U.S. Army corps commanders. The research covers Joint, Air Force, and Army doctrine. Problems which came to light as a result of Operation DESERT STORM are also considered. Finally, the Air Force and Army positions on effective air support to the ground force are compared. Ultimately, the monograph considers whether or not the system in place provides air support which allows the Army to conduct corps level actions characterized by depth, agility, synchronization, and initiative.

The analysis of US Air Force doctrine shows that the service emphasized centralized control and decentralized execution. The study finds that the doctrine promotes maximum top-down planning with a focus on continuous operations which are directly controlled by the Joint Force Air Component Commander. The Air Force recommends executing interdiction as a single operation rather than allocating sorties as Battlefield Air Interdiction. The study does find that the air doctrine is supportive of Close Air Support.

Army doctrine is shown to be quite different on the issue of airpower, and in particular, on interdiction. The Army's position is that campaigns, or at least land campaigns, are won by a series of decisive battles. The corps is seen as the primary echelon for fighting major battles. Army doctrine requires the corps commander to synchronize close, deep, and rear operations into one simultaneous battle which concentrates overwhelming combat power effects in space and time. The Army doctrine sees Battlefield Air Interdiction as a critical element in creating the firepower effects necessary for decisive battle.

In conclusion, the study finds that the Army needs Battlefield Air Interdiction for those operations which require the corps commander to fight a major battle. The study recommends viewing the battle area as a distinct concentration of combat power in both space and time. The author suggests that the services must establish commander to commander relationships at the tactical (corps and wing) level in order to create AirLand Battlegroups which can achieve the decisive results envisioned by Army doctrine.

AirLand Battle Tactics: An Analysis of Doctrine and Experience

A Monograph
by

Major C. William Robinson
Infantry



School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

First Term AY93-94

Approved for Public Release; Distribution is Unlimited

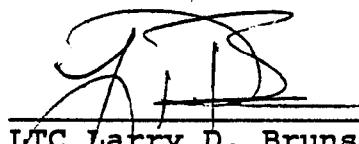
SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Charles W. Robinson

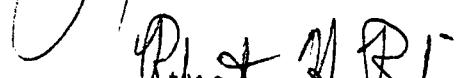
Title of Monograph: AirLand Battle Tactics: An Analysis of
Doctrine and Experience

Approved by:



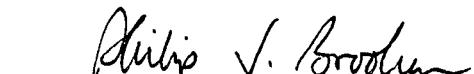
LTC Larry D. Bruns, MMAS

Monograph Director



Robert H. Berlin, Ph.D.

Deputy Director,
School of Advanced
Military Studies



Philip J. Brookes, Ph.D.

Director, Graduate
Degree Program

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution	
Approved	
Entered	
Editor	
A-1	

Accepted this 17th day of December 1993

ABSTRACT

AIRLAND BATTLE TACTICS: AN ANALYSIS OF US ARMY AND US AIR FORCE DOCTRINE AND EXPERIENCE by MAJ Charles Wm. Robinson, USA, 62 pages.

This monograph examines whether US Army doctrine and US Air Force doctrine are compatible. In particular, this study assesses the current Air/Ground Operating System and the offensive air support it provides to U.S. Army corps commanders. The research covers Joint, Air Force, and Army doctrine. Problems which came to light as a result of Operation DESERT STORM are also considered. Finally, the Air Force and Army positions on effective air support to the ground force are compared. Ultimately, the monograph considers whether or not the system in place provides air support which allows the Army to conduct corps level actions characterized by depth, agility, synchronization, and initiative.

The analysis of US Air Force doctrine shows that the service emphasized centralized control and decentralized execution. The study finds that the doctrine promotes maximum top-down planning with a focus on continuous operations which are directly controlled by the Joint Force Air Component Commander. The Air Force recommends executing interdiction as a single operation rather than allocating sorties as Battlefield Air Interdiction. The study does find that the air doctrine is supportive of Close Air Support.

Army doctrine is shown to be quite different on the issue of airpower, and in particular, on interdiction. The Army's position is that campaigns, or at least land campaigns, are won by a series of decisive battles. The corps is seen as the primary echelon for fighting major battles. Army doctrine requires the corps commander to synchronize close, deep, and rear operations into one simultaneous battle which concentrates overwhelming combat power effects in space and time. The Army doctrine sees Battlefield Air Interdiction as a critical element in creating the firepower effects necessary for decisive battle.

In conclusion, the study finds that the Army needs Battlefield Air Interdiction for those operations which require the corps commander to fight a major battle. The study recommends viewing the battle area as a distinct concentration of combat power in both space and time. The author suggests that the services must establish commander to commander relationships at the tactical (corps and wing) level in order to create AirLand Battlegroups which can achieve the decisive results envisioned by Army doctrine.

Table of Contents

	Page
I. Introduction	1
II. The Air/Ground System	7
III. The Army View of Air Power	22
IV. Conclusion: AirLand Battle Revisited	35
Appendix: Transcript of an Interview with General Frederick M. Franks	41
Endnotes	48
Bibliography	58

I. INTRODUCTION

In the 1976 version of the U.S. Army's FM 100-5, the term AirLand battle was introduced into the military lexicon.¹ This field manual, based on the premise that the U.S. ground forces would have to fight outnumbered yet win the first battle, stated explicitly that airpower was a prerequisite for the successful prosecution of the ground campaign.² This fundamental assumption remains a key component of the U.S. Army's doctrine. The 1993 edition of FM 100-5 classifies an air operations capability as essential for success on the battlefield.³ AirLand battle, therefore, has been and is a cornerstone of U.S. Army doctrine. In other words, the U.S. Army assumes that an airpower contribution to air/ground operations will be part of the ground commander's tactical equation. This leads to a research question, does the current air/ground operating system provide the offensive air support the U.S. Army corps commander needs to prosecute his battle in accordance with the Army's doctrine?

This question is not limited to academic curiosity, but is rooted in a debate which has recurred since the separation of the United States Air Force (U.S.A.F.) from the U.S. Army in 1947. Richard Hallion, airpower historian and the author of Storm Over Iraq, reports that there was controversy in the target selection for airpower during the planning phase of Operation Desert Storm.⁴ This debate continues in the professional journals of the services, as well as in the interservice, or joint, press. Some have proposed giving the A-10, Thunderbolt II, and its close air support (CAS) mission, to the U.S. Army.⁵ Others, such as Major Carl Pivarsky of the USAF, would designate the air component a "maneuver" command and assigning it an area of operation.⁶ In between these views lie numerous, and sometimes acrimonious, opinions. In order to address the research question of adequate air support it is necessary to understand the context of the debate.

To a great extent the current debate has been shaped by the experiences of the various services in the 1990-91 Persian Gulf War. It is important to note, and the services'

analyst have done so, that the "war in the gulf" was not a complete test of the service and joint doctrines. An example of a doctrinal deviation was General Schwarzkopf's decision to retain the role of land component commander. As a result of this decision, the Battlefield Control Element did not provide a clear voice for the ground component commander's needs, but instead served merely as a collating center for corps commander's requests.⁷ This debate over targeting has been exacerbated by authors, such as Hallion, who base criticism of one service solely on interviews of members of another.⁸

The Iraqi air force appeared very capable but in actuality proved to lack the training and motivation necessary for a technologically inferior force to challenge a state of the art war machine. According to the final report of the Department of Defense to the U.S. Congress, the Iraqis could field 750 combat planes, as opposed to a coalition air strength of 1,736 combat aircraft.⁹ This meant the coalition had both numerical and technological superiority and therefore did not have to make extremely difficult allocation decisions. Professor Michael Palmer, author of "The Storm in the Air: One Plan, Two Air Wars," notes that this imbalance was so great that it created a scenario which air theorist, and air planner for the war, Col. John Warden labeled a "commander's dream."¹⁰ With the Iraqi's gross air inferiority, the Gulf War may offer few true examples of the tough choices of allocation and apportionment that are part of the considerations in situations of near air parity. These deviations from what was expected drive the analysis of the Gulf War to the common problem of planning, coordinating, and controlling air power in support of ground operations.

With the limitations on drawing lessons from the Gulf War, it is important to look at other sources for relevant information into the problem of responsive air support. The question of where the ground commander will have freedom of action to coordinate his allocated airpower with surface fire and maneuver is a major issue. A major component of this debate is the question of terrain and airspace control. These issues are the subject of

debate both in the semi-official and professional journals, as well as in the reports of theater commanders in chief (CINCs) and various U.S. Army and U.S.A.F. leaders.

A particular element of the debate over control of air and fires is the establishment and definition of the fire support coordination line (FSCL) and other fire control measures. On one side of the debate are authors, such as the previously mentioned Major Pivarsky, who is currently serving as a liaison to the U.S. Army's Command and General Staff College, advocating that the FSCL is a boundary, and control of all deep fires should be placed under the Joint Forces Air Component Commander (JFACC).¹¹ Lieutenant Colonel Frederick Strain, USAF, writing in the Joint Force Quarterly, goes so far as to transliterate FSCL as the "Forward Support Control Line," adding that interdiction should be centralized under the Joint Force Air Component Commander (JFACC).¹² Another perspective on the issue is that of Major Bob Locke, a fighter liaison officer in a Tactical Air Control Party. In Major Locke's view, the major problems in air/ground coordination are a result of a failure to adequately train individuals and staffs in joint force coordination using the current systems.¹³ This sentiment is echoed by Major Tom Gorman of the Air-Ground Operations School and endorsed by the Air Land Sea Application Center.¹⁴ A third point of view is offered by such authors as Lieutenant Colonel Brian W. Jones, USAF. Colonel Jones suggest that any offensive air operation in support of the ground force mission should be considered CAS.¹⁵ In fact, Colonel Jones goes so far as to suggest that air assets be temporarily grouped with ground forces to insure responsiveness.¹⁶ Major Rolf Sandbakken, USMC, also claims that the centralized control advocated by the USAF is "the antitheses of flexibility," and will not provide the responsive air support needed by the "warfighting commander."¹⁷ Major Sandbakken states that the Marine Corps principle of decentralized control provides the responsiveness needed for "maneuver warfare."¹⁸ With this divergence of opinion, the research question goes to the heart of the issue of effective air/ground operations.

Two key areas must be understood prior to determining if the current air/ground operating system provides the U.S. Army corps commander sufficient air support. First, the idea of an air/ground operating system must be clarified (Chapter II). Second, the corps commander's requirements, as articulated in U.S. Army doctrine need to be surfaced and highlighted (Chapter III). By exposing these central components of AirLand Battle, a comparative analysis should show whether or not the system meets the requirements (Chapter IV).

Emphasis must be maintained on the idea that the air/ground operating system is not, in the official sense, a true system. Air/ground operations doctrine is actually more a patchwork of systems expressed in joint and service publications and practice. For simplicity, the aggregate of measures intended for effective application of airpower to support the ground tactical commander will be referred to as the air/ground operating system. This idea of an air/ground operating system reflects the view that all of the services are working towards effective application of force in a joint environment.

The concept of the integration of joint fires, including airpower, is not new. The idea of an air/ground operating system has been inspired, in part, by the work of Lieutenant General (U.S.A. ret.) John H. Cushman, who built his concepts on work done by the U.S. Army and U.S.A.F. in the 1970s and 1980s.¹⁹ General Cushman coined the phrase "air/land warfare" to describe the interdependence of air and ground forces.²⁰ Likewise, since World War II, the U.S. Marines have emphasized integration of air and ground forces into a single Marine Air Ground Task Force. This concept is reflected in the emerging joint doctrine reflected in Joint Pub 3-09, Doctrine for Joint Fire Support.²¹ In keeping with this broad idea of fire support, for the purpose of this study, offensive air support will be used to include any U.S. Air Force air to ground attacks in support of a corps commander's operation. The working name, air/ground operating system also borrows on the idea embodied by the U.S. Air Force Air Ground Operations School which is designed to promote greater efficiency in planning and controlling air support for

ground forces. This school emphasizes the Theater Air Control System, which in turn has procedural and organizational elements which are designed to facilitate the use of airpower in support of ground forces. A final element of the concept is the Army Air Ground Operating System which is a subset of Integrated Combat Airspace Command and Control. These systems are designed to insure that airspace management and control supports the accomplishment of both air and ground component missions. Taken all together, these sources describe the system by which airpower is integrated into the corps commander's planning and execution. This study identifies the specific elements of this system and addresses problems that seem to affect the system's ability to achieve its purpose.

The doctrinal basis for a corps commander's planning and execution is the U.S. Army's concept of AirLand Battle. This concept has evolved over time from the 1970s until the present. The primary expression of the doctrine is found in FM 100-5, Operations. The 1993 edition of Operations notes the mutuality of the services stating that joint operations create a "dilemma for the enemy."²² Important to this study, the manual describes the commander's requirement to synchronize simultaneous close, deep, and rear operations into one battle in order to accomplish his mission.²³ The manual emphasizes the "tenets of Army operations," which "describe the characteristics of successful operations."²⁴ These tenets are: initiative, agility, depth, synchronization, and versatility. These characteristics describe a theory of operations in which the commander seeks to concentrate "overwhelming combat power" at the "decisive place and time."²⁵ A detailed analysis of this document, and supporting documents, is the first step toward understanding the corps commander's needs.

In order to determine if the air/ground operating system is responsive to these needs, a comparison must be made using the idea of application of combat power in operations designed to achieve the characteristics embodied in the five tenets of Army operations. An assessment is needed to determine the capability of the current system to

allow the commander to exercise his initiative and, as FM 100-5 states, "force the enemy to conform to the commander's operational purposes and tempos, while retaining freedom of action."²⁶ A second assessment judges the system's ability to give the commander agility, "the ability to act faster than the enemy."²⁷ Another comparison determines the system's means for providing the commander sufficient depth to extend his operations in space, time, and purpose, in particular, extending his ability to attack the enemy simultaneously throughout the battlefield.²⁸ A fourth consideration is needed to determine whether the current system allows synchronization of air and ground operations such that the commander is able to arrange these activities "in time and space to mass at the decisive point," thereby maximizing the effects of combat power.²⁹ The final tenet, versatility, applies to the ability of U.S. Army forces to adapt to a wide variety of missions and environments and therefore will not be analyzed against the air/ground system.³⁰ The process of evaluating, assessing and considering the tenets of Army operations, provides the criteria necessary to determine if the corps commander's needs can be met.

The corps commander's needs are driven by the concepts in U.S. Army doctrine. That doctrine has been rooted in the premise of the inseparability of air and ground operations. Likewise, the various components of the air/ground operating system were developed with a view towards enhancing the ability of the U.S. Air Force to support the U.S. Army. Despite these concepts and goals, there is debate over the ability of the system to provide that support and evidence that corps commanders were not fully satisfied with the system's efficiency during the Gulf War. With this in mind, the question as to whether the current air/ground operating system provides the offensive air support the corps commander needs to accomplish his mission bears answering.

II. THE AIR/GROUND SYSTEM

The phrase air/ground system is, to a certain extent, a misnomer. There is no single, integrated air/ground system, but rather a set of interconnected systems. Furthermore, as this document is being written, the services, under the direction of the Joint Staff, are moving to integrate certain aspects of the system through the development of doctrine, procedures, and architecture. Therefore, although the system is not completely formal, one can say that the *de facto* system can be identified as the aggregate, or amalgamation, of existing systems. This study must account for the dilemma that the primary purpose of each system may compete with the purposes for which interconnection is developed. Therefore, this composite system might be more an air/ground complex instead of a true system. However, the systems view will be used because overall effectiveness, efficiency, and responsiveness are the goals of the various parts when applied to offensive air attack in support of the army.

Using the goals as a basis, the air/ground system serves the purpose of coordinating the function of force application by airpower to support land operations. The network is provided by the interaction of various sub-systems. The two principle sub-systems involved in integrating airpower to support Army operations are the Theater Air Control System and the Joint Fire Support System. The first of these is key because it is the means by which the Army includes the Air Force in the planning process. It is also the system that the Air Force uses to control air missions. The Joint Fire Support system is the mechanism through which the Air Force provides fires and from which the Army commander seeks allocation of air fires. The combined systems allow the Army corps commander to use airpower in his operations.

Within these sub-systems, the critical integrating elements are planning, controlling, and coordinating elements. The individual members of the system are the commanders,

staffs, and liaison officers of the Army, Air Force, and Joint Headquarters. Principles, organization, and procedures for the system are found in the various doctrinal publications of the services and the Joint Staff.

The Theater Air Control System is the Air Force system for providing command and control of airpower. The system, formally known as the Tactical Air Control System, is the heart of the air component headquarters in a joint force. According to Air Force Doctrine:

The Tactical Air Control System (TACS) is the organization, personnel, procedures, and equipment necessary to plan, direct, and control tactical air operations and to coordinate air operations with other Services and Allied forces. It is composed of control agencies and communications-electronics facilities that provide the means for centralized control and centralized execution of tactical air operations.³¹

The system includes organizations and procedures for executing air support of ground operations. To understand the Air Force view of how this air support should be executed, one must examine Air Force doctrine.

Close air support is the focus of the United States Air Force doctrine for offensive air support of the Army. Air Force Manual 1-1, Basic Aerospace Doctrine of the United States Air Force, is akin to the Army's FM 100-5 as a keystone manual. This manual describes successful air support as the result of close coordination.³² Successful close air support is not further defined, but the Air Force doctrine does imply that responsiveness is critical, stating that, "Effective close air support requires reliable communications and flexible and responsive command and control."³³ The doctrine also states, "Responsiveness also requires nearby bases or air refueling to permit airborne alert."³⁴ With this in mind, the Air Force sees the need for air support designated to serve the ground commander to be responsive, and seems to view responsiveness in the sense of the pure Webster's dictionary definition of answering or "quick to respond."³⁵ The Air Force also recognizes that within its limitations, the air support provided to the ground force

should, in the words of Air Force Manual 1-1, volume one, "be performed in a way that best supports the commander's intent."³⁶ The Air Force considers responsive air support as able to quickly answer the ground commander's requirements.

The Air Force, while recognizing the need to meet the supported commander's requirements, focuses their doctrine in terms of avoiding being misused by the ground commander. The basic Air Force doctrine does list three characteristics, or perhaps imperatives, of effective close air support:

- (1) Close air support should usually be massed to apply concentrated combat power.
- (2) Close Air Support should create opportunities.
- (3) Close Air Support should be planned and controlled to reduce the risk of friendly casualties.³⁷

The manual makes these points in the context of air working for the ground commander's objectives, and emphasizes the importance of insuring the ground commander understands the nature of close air support. The manual states:

Airman advising surface commanders must understand the operational difficulties in close air support, the importance of prompt exploitation by surface forces, and the risks involved for friendly surface and aerospace forces; all of which demand exacting command and control.³⁸

This concept is the focus of their approach for employing airpower to support the ground force. The Air Force, as the lead agency for employment of air forces, has developed the Theater Air Control System, or TACS, with a view towards ground support.

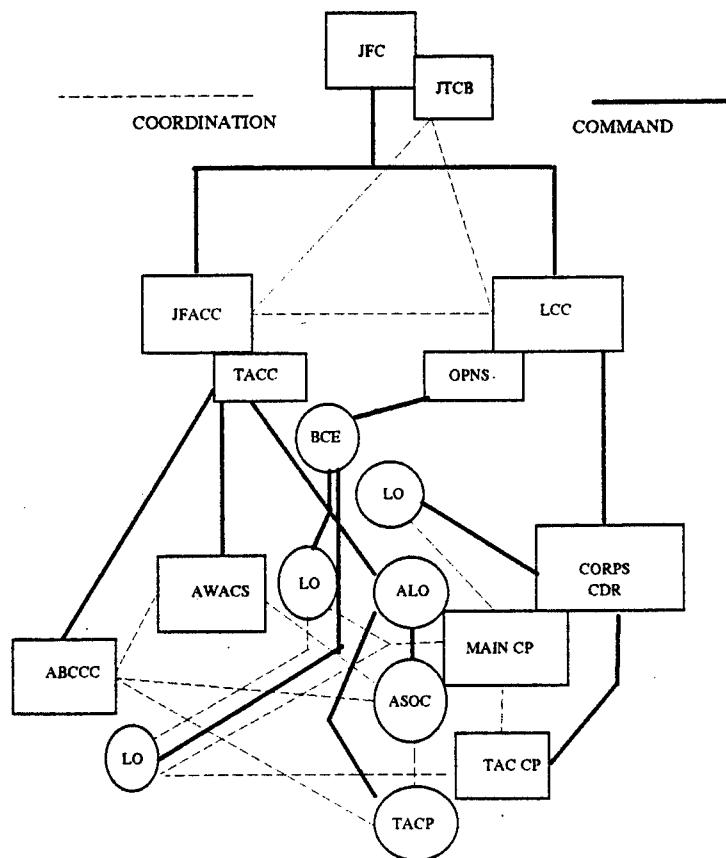
The primary purpose of TACS is to insure the integration of all airpower into the accomplishment of the Joint Force Commander's (JFC) intent. The common theme throughout Air Force doctrine is that airpower is primarily a strategic and operational rather than tactical instrument.³⁹ The system is based on a principle of centralized control, while at the same time emphasizing decentralized execution. Centralized control is provided by the Joint Force Air Component Commander (JFACC).⁴⁰ Centralized planning and control is provided for the JFACC primarily by the Tactical Air Control Center, or

TACC. The TACC is the primary planning element in that it assists JFACC by preparing recommendations for allocation, apportionment, tasking, and targeting. Once the recommendations are accepted, the TACC serves as a control headquarters by issuing the Air Tasking Order, or ATO, and supervising its execution. The nomination and inclusion of air request for support to the Army, in effect the Land Component Commander (LCC), is reflected by the inclusion of close air support sorties, and to a lesser extent air interdiction sorties, in the ATO.

Within the TACS, integration of airpower with the ground force during the planning and execution phases is accomplished through several means and at several nodes. The primary actors in the formal system for coordinating air support are the Battlefield Control Element (BCE), which is the primary liaison of the Army to the TACC, and the Air Support Operations Center (ASOC), which serves as the Air Force node to the corps headquarters. The TACS/Army Air-Ground System relationships are illustrated below. Service doctrine for these elements offers the best appreciation for their roles.

The BCE, is apex of the Army Air-Ground System and the primary nexus for integrating the Army needs into the air component planning and execution.⁴¹ Lieutenant Colonel William Welch, a member of the U.S. Army's First Battlefield Coordination Detachment states, "This [the BCE] is the highest level in the tactical air control/Army air/ground system."⁴² According to FM 100-7, The Army in Theater Operations, "The Battlefield Control Element provides a complete interface between the Army commander and the ACC for conducting operations."⁴³ FM 100-15, Corps Operations, amplifies this concept, stating, "The BCE monitors and analyzes the land battle for the TACC and provides the interface for exchange of current intelligence and operational data and support requirements between the LCC, ACC, and the corps."⁴⁴ The BCE is, therefore, the critical Army liaison to the Air Force.

THEATER AIR CONTROL SYSTEM/
ARMY AIR-GROUND SYSTEM
COMMAND AND CONTROL



The importance of the BCE to making the system responsive must not be underestimated. The BCE is supplemented by some other key liaison officers, or LNOs. Colonel Welch describes these key individuals:

The BCE organization includes four man sections to operate with each division of the TACC and ALCC. An air defense/airspace management section operates in both today's and tomorrow's wars accomplishing both planning and immediate coordination. In a multi-corps environment, each corps provides a liaison element (LNO) to the BCE. In Saudi Arabia LNOs were also provided by the Royal Saudi land forces and the U.S. Marine Corps. Army representation is further provided down to the wing level by ground liaison officers (GLO).⁴⁵

With this representation at the TACC, the land component, and the corps should have a voice in the development of the ATO. Unlike the great air/ground teams of the past, the sole voice is that of LNO to staff rather than commander to commander.⁴⁶

Within the system, the exchange of liaison officers is viewed as crucial to the coordination of air and ground operations. Currently, the Air Force does not provide permanent liaison at echelons above corps. The Air Force does provide liaison down through the Army command and control system from corps to battalion. The responsibility for liaison to the corps commander is shared by the Air Support Operations Center, or ASOC and the Tactical Air Control Party. According to the most current Air Force doctrine:

The ASOC plans, coordinates and directs tactical air support of ground forces, normally at corps level and below. It is subordinate to the TACC and provides fast reaction to request for tactical air support, to include close air support, tactical air reconnaissance, tactical airlift, and in some situations BAI [Battlefield Air Interdiction].⁴⁷

The ASOC is directed by the Air Liaison Officer, or ALO, who is typically a fighter pilot. The ALO is the senior advisor to the corps headquarters on the employment of airpower. One key aspect of the ASOC, and the aircraft under its control at any given time, is that it is subordinate to the TACC, not the corps. Secondly, the ALO, with the ASOC and TACP, is not a true headquarters, but is a liaison and control node. Finally, the ASOC can direct only what is allocated. If BAI is not a recognized allocation, the corps commander must fall back on target nomination through the BCE to integrate air beyond the limits of CAS.

The ALO and ASOC work with several other organizations that assist in integrating airpower into the corps operation. In addition to directing the ASOC, the ALO also controls the Tactical Air Control Parties, or TACPs. While the ASOC should be collocated with the Fire Support Element, or FSE, in the corps main command post, the TACPs are located with the corps tactical command post and command group.⁴⁸ According to the joint Army, Air Force pamphlet, Joint Attack of the Second Echelon, "The TACP members provide advice on the capability and availability of fighter, reconnaissance, and airlift assets." The pamphlet adds, "They assist in the development of

AI [Air Interdiction] and BAI targets, preplanned and immediate CAS, reconnaissance and airlift requirements."⁴⁹ Most importantly, all attack sorties performing CAS are handed over to the TACP during execution. Once again, direct control is only exercised over CAS and BAI is only planned if allocated. The ALO can only assist the corps commander in influencing AI within his ability to dialog with the JFACC and the TACC.

These duties and capabilities make the TACP particularly important in terms of providing the corps commander with the positive control necessary for the flexible employment of airpower as the situation evolves. The TACP offers the commander the opportunity to adjust his current plan for using airpower and the communications and expertise necessary to adjust the execution of the air attack to insure coordination with the current ground force actions.

From the corps commander's perspective, the TACP and ASOC, both under the direction of the corps ALO, are the primary advisors and control elements in planning and executing air support of ground operations. These elements can be supplemented by other key Air Force control elements. These controllers are the Airborne Command and Control Center, the Airborne Forward Air Controller, and the Airborne Warning and Control System. All of these control elements work for the TACC and assist the JFACC commander in maintaining the centralized control which is a component of Air Force doctrine.

The importance placed on centralized command and control by the Air Force derives from the tenets of this services doctrine, found in AFM 1-1. The doctrine for control of airpower derives from the basic concept of what aerospace power is and what it is capable of doing. The manual states, "Aerospace power grows out of the ability to use a platform operating in or passing through the aerospace medium for military purposes."⁵⁰ The basic concept includes several key characteristics of aerospace power:

Elevation above the earth's surface provides relative advantages over surface-bound forces. Elevation provides broader perspective, greater potential speed

and range, and three-dimensional movement. The result is inherent flexibility and versatility based on greater mobility and responsiveness. Aerospace power's speed, range, flexibility, and versatility are its outstanding attributes. This combination of attributes provides the foundation for the employment concepts of aerospace power.⁵¹

The Air Force fundamental view of airpower as absolutely flexible and responsive drives the service to maintain maximum control until the last moment. The ideas of flexibility, speed, and responsiveness are further refined by the concept of a capability for rapid concentration at any place and time.⁵²

The manual contains a critical caveat, "The versatility of aerospace power may easily be lost if aerospace forces are subordinated to surface elements of power."⁵³ The first stated tenet of aerospace power is the concept of centralized control and decentralized execution:

Aerospace forces should be centrally controlled by an airman to achieve advantageous synergies, establish effective priorities, capitalize on unique strategic and operational flexibilities, ensure unity of purpose, and minimize the potential for conflicting objectives. Execution of aerospace missions should be decentralized to achieve effective spans of control, responsiveness, and tactical flexibility.⁵⁴

All of this means that when an aircraft takes off, TACS maintains centralized, positive, and procedural control until the last possible moment. The Air Force prefers its aircraft to attack strategic and operational targets developed by the TACC rather than those developed by the ground force. This preference is the primary source of friction between the Army and the Air Force, and is consistent with the issues of targeting and allocation shown below.

A basic interservice concern stems from the receptiveness of the Air Force to the targeting desires of the Army. In particular, much of the debate is focused on air attacks of deep targets designated by the Army. Referred to as Battlefield Air Interdiction, this is a concept which is on again, off again in the various joint and service doctrines. This debate over BAI leads to a review of the emerging idea of a Joint Fire System and how it is designed to meet the needs of the Army.

Joint Pub 3-09 is the basic document for the current doctrine of joint fire support. The stated purpose of the manual is to provide, "doctrine and procedures for planning and executing joint fire support, including fire support coordination, linkages with intelligence, and the allocation of fire support efforts."⁵⁵ The manual defines joint fire support as:

the fire of a supporting force against targets or objectives which are within or sufficiently near the area of operations of the supported force as to require detailed integration of coordination of the supporting action with the supported force. ⁵⁶

Firepower is defined as: "the destructive force essential to defeating the enemy's ability and will to fight."⁵⁷ The manual describes the elements of joint fires as: interdiction, joint fire support, and service fire support.⁵⁸ All three of these means may provide benefit to the Army corps commander. The manual specifies that CAS and BAI are types of joint fire support. From a ground perspective, these are the critical offensive airpower applications. The problems differs between CAS and BAI, with each provoking controversy.

Close air support epitomizes the intent joint fire support and seems relatively easy to envision. CAS implies airpower acting in support of another commander's objectives in close proximity to the supported force, or as part of the close battle. Despite the apparently straightforward definition there is controversy. One group of students from the Armed Forces Staff College, the nation's primary center for joint staff training, has concluded that the Army should assume responsibility for CAS.⁵⁹ The controversy stems from the Air Force view that CAS is an inefficient use of airpower.

AFM 1-1 says that close air support is an inefficient use of airpower, but it does so in saying that CAS may be the most critical use.⁶⁰ In fact, the doctrine clearly recognizes the importance of CAS, stating:

Yet, in certain circumstances, close air support can make a great contribution to campaign success. On the offensive, close air support can make a transition from static to mobile operations easier for surface forces by helping them achieve a breakthrough (as in Operation Cobra's contribution to the Allied

breakout from Normandy). Once surface operations are fluid, close air support can help surface forces maintain a high tempo in their advance (as with XIX Tactical Air Command's support of General George Patton's Third Army in 1944). Similarly, on the defense, close air support can prevent an enemy offensive from achieving the mass necessary for success (as at Khe Sanh in 1968) or from maintaining tempo (as in the Battle of the Bulge in World War II).⁶¹

So one can see that the Air Force doctrine does not undervalue CAS, it merely seeks to balance the competition for CAS against the missions of strategic attack and interdiction. Once CAS has been allocated, or even when missions are diverted, CAS is quite responsive to the corps commander's needs. The debate over BAI is not so easily resolved.

The most divisive interservice arguments have been over the concept of BAI. In order to understand the concept of BAI, the general concept of interdiction must be understood. Joint Publication 3-03, the test manual for a joint interdiction doctrine, explains the role of interdiction by stating that, "Interdiction aims to divert, disrupt, or destroy enemy surface military potential before it can be used effectively against friendly forces."⁶² From the ground commander's perspective, the interdiction subcategory of joint attack of second echelon forces, or J-SAK, is critical. Joint Pub 3-03, General Operating Procedures for Joint Attack of the Second Echelon, addresses J-SAK as, "interdiction of uncommitted enemy echelons that can be brought to bear on friendly forces."⁶³ The manual adds, "Such interdiction provides an operational level focus against a specific force objective to achieve a specific result over a specific time period."⁶⁴ The only limiting factor in this concept of attacking enemy forces behind their committed echelons is the inclusion of operational level as a part of the definition.⁶⁵ Certainly, attack of uncommitted forces is an important capability. This need sparked the concept of BAI. BAI is interdiction in support of the higher tactical commander's battle, predominately the corps commander.

According to Joint Pub 3-09, battlefield air interdiction is roughly equivalent to J-
SAK. This publication specifically defines BAI as:

Air interdiction (AI) attacks against hostile ground targets which are not in close proximity to friendly forces but are in or sufficiently near the area of operations of friendly forces and directly affect near term operations or the scheme of maneuver of friendly forces.⁶⁶

This idea of BAI bridges the gap between operational air interdiction, specifically follow on forces attack, and close air support. The root controversy is over who targets the AI.

Targeting determines what will be hit, how it will be hit, and where and when it will be hit. Joint Pub 3-09 defines interdiction targeting this way:

Targeting translates desired effects into specific missions and attacks. It selects targets and matches appropriate resources to them taking account of operational requirements and capabilities. Interdiction targeting aims to execute a connected series of missions and attacks to produce effects based on the JFC's interdiction objectives.⁶⁷

The controversy centers on the Air Force view that all interdiction should derive specifically from the JFC's guidance. Major General Larry L. Henry, who served in the planning cell of CENTCOM's TACC and is now a deputy to the USAF Deputy Chief of Staff for Plans and Operations, stated:

The term BAI is offensive to us because we oppose subdividing the interdiction campaign into small packets, which would only weaken its overall impact and make it more difficult to plan and execute from a theater perspective. That is why we always talk "interdiction" -- to encompass the total theater battle.⁶⁸

As a result of this approach, targeting issues are resolved through a boarding process. If the JFC is not personally involved, this Joint Targeting Board process allows the joint headquarters to micro-manage BAI by target selection. In effect, the board determines which targets will be hit.

The boarding process was used in the Persian Gulf War. Rather than allocating control of BAI to Army commanders, as was done by the CINCs in Korea and Europe, CENTCOM used the broader concept of AI. Under this system, Army corps commanders

nominated targets to the Joint Targeting Board. This board screened all targets and forwarded a shortlist to the CINC. This list of targets, once approved, served as the core of the interdiction focus within the Air Tasking Order. The two major issues surrounding air support in DESERT STORM stem from this system.⁶⁹

The first issue arose over the Army's ability to have airpower hit specific deep targets which the corps commanders felt were important. The second issue was the Air Force complaint that the Army nominated out of date targets.

In his comprehensive work on DESERT STORM, Crusade: The Untold Story of the Persian Gulf War, journalist Rick Atkinson tells of the conflicts over targeting which resulted from the target nomination system. Atkinson reports that few of the Army corps' targets made the air-tasking order, and usually, those that did were not reflective of the ground commanders' priorities.⁷⁰ On the other hand, Atkinson notes, "Nominated target locations were supposed to be pinpointed on the map within a hundred meters and the position revalidated by intelligence just four hours before the air strike -- requirements the Army often found impossible to meet.⁷¹

General Frederick Franks, who commanded the U.S. Army's VIIth Corps in the desert, is singled out by Atkinson in his discussion of the targeting issue. General Franks, in a personal interview, corroborates Atkinson's statement. General Franks was quite open about both sides of the controversy, stating:

One of the difficulties is the current procedural doctrine that the Army land commander nominates a list of targets to be struck. I think that is a bad way of doing it. I think we ought to stop doing it that way. The Army land commander cannot generate the intelligence over the course of a battle that's going to last a week, two weeks, a month, to have the targeting accuracy necessary. Therefore, when the target list is submitted some of the targeting data is quite old. Over time the Air Force loses confidence when they fly to those targets and there is nothing there.⁷²

Criticism stems from the requirement that the Army nominate interdiction targets to a board, that must review them, get the CINCs approval, and then integrate them into the

ATO. This entire process creates part of what is known as the ATO cycle, which generally lasts about 72 hours. Major General Steven Arnold, who served as the G3 of Army Forces in the Gulf, reports that this 72 hour cycle caused the Army to develop interdiction targeting priorities 96 hours in advance in order to collect intelligence for target nomination.⁷³ A 96 hour lead time for deep fires does not demonstrate agility as the Army uses the concept. The submission of corps targets to the joint fire support system, and from there into the Air Force TACC, ends the request phase and returns the cycle to the Army and Air Force systems.

The return to the service systems highlights a dichotomy between capabilities and products, even without the discussion of the Army perception of what air should do for the ground force. The system should give the ground commander the ability to attack enemy capabilities without the requirement to provide the Air Force specific targets. Major General Henry, in his interview, states that the new targeting capabilities should support this capability to rely on mission orders.⁷⁴ General Franks points out a failure to exploit the Air Force TACS' access to all manner of intelligence. General Franks states that the doctrine should not, in his words, "require the Army to submit long target lists when those target lists ought to be developed by a group of targeteers with access to near real time intelligence of the target area."⁷⁵ This idea of describing effects to be achieved rather than discreet targets to be hit goes hand in hand with the Air Force belief that, "Achieving the full potential of aerospace power requires timely, relevant intelligence and sufficient command and control assets to permit commanders to exploit its speed, range, flexibility, and versatility."⁷⁶ This goal would seem attainable under the concept of mission orders. Joint Pub 3-03 suggests:

Interdiction operations should normally rely on mission type orders, which assign subordinate commanders clear military objectives and allow them to develop the details. Mission type orders task subordinate commanders to achieve an effect -- to slow, channel, weaken, or destroy enemy forces.⁷⁷

Lieutenant General John Cushman describes such a relationship in his tract, Thoughts for Joint Commanders:

The land formation commander may well, and usually should, define the specific effect to be achieved. This definition may involve a give-and-take process. But there can be only one answer as to who defines the target itself - - the airman. No one else has the combination of technical and operational expertise required to decide the details of what to do and how to do it.⁷⁸

This describes a system of mission orders, based on dialog between coequal air and ground commanders. Such a system would not be new.

This system of coequals is recommended, but not required, by doctrine for the Joint Force level. However, examination of the systems in place shows there is no direct interface between air and ground commanders below the joint force level. A partnership of air and ground commanders is the foundation of successful air/ground operations, as shown below.

In both the Second World War and the Korean War, the air and ground commanders worked closely. Historians Richard Kohn and Joseph Harahan, in an official Air Force study, report that Generals Walton Walker and Matthew Ridgeway met almost daily with General Earle Partridge, then commanding Fifth Tactical Air Force, while each was the Eighth Army Commander.⁷⁹ Captain Jonathan House of the Army's Combat Studies Institute notes that in Italy, Fifth U.S. Army and XIIth Air Support Command had collocated command posts.⁸⁰ Likewise, within the larger theater of operations in France, General George Patton, commanding the Third U.S. Army, worked hand in glove with General Otto Weyland. General William Momyer emphasizes the importance of the "field army/tactical air command air-ground teams" in an interview with Richard Kohn.⁸¹ A student of air/ground operations could go on and on. A cursory examination of other case studies of success shows a similar relationship.

In summary, the Theater Air Control System and the emerging Joint Fire Support System, view tactical offensive air support as critical. There are systems in place, or

emerging, which attempt to integrate air support into the ground operation. However, there are easily identified shortfalls in the system. First, the system does not promote the commander to commander dialog that was critical in the aforementioned historical cases. Second, the system does not insure that the air force support of the army corps beyond close air support will conform to the intent and concept of the ground commander, rather these targets are selected by a committee. Finally, the system does not exploit the capabilities available to integrate the near real time intelligence systems with the employment of airpower in support of the army corps, instead, it relies on nomination of discreet targets. With these limitations in place, the question of what airpower means to the concept of AirLand Battle becomes even more significant.

III. THE ARMY VIEW OF AIRPOWER

The United States Army expects a high level of support from the Air Force. On the surface, these expectations should not exceed what the Air Force is prepared to give. Striking a balance is difficult. Doctrine and experience drive the Army expectations. Clearly, an analysis of Army doctrine is the method for determining these expectations for airpower in Army operations and likewise, the differences in service views.

Even the most conservative ground commander will see great capabilities in airpower. The Air Force gives the immediate impression of depth and speed. Air forces came into existence for deep reconnaissance and rapid liaison. With the addition of guns and bombs the air forces gained the ability to attack the enemy in depth without concern for the position of the front. Air theorists from Douhet to Warden have emphasized this ability to strike deep, even to the point of attacking the enemy strategic rear.

Land forces are by first impression, and relative to the air forces, built with an emphasis on the close battle. In relation to the Air Force, this seems to give a sense of linearity to the Army's ability to fight. This impression is understandable. The history of armies is centered on close battle. In the thousands of years over which armies have evolved, the close fight, epitomized by the direct clash of arms on a battlefield, has been the place of decision. It is the natural tendency to linearity which has driven armies to seek ways to overcome the limitations of close operations in the line of battle. By and large, the successful solutions to this "Gordian Knot" have been based on an ability to attack the enemy in greater depth, striking the deep flanks and rear.⁸² No other system has given the military commander depth, speed, and flexibility to the extent that air systems have.

To understand the fundamental difference between ground and air forces, it is not enough to say air is the ultimate high ground. One must understand the fundamental

differences between air and ground. Air has no limits in relation to the ground. Ground has a very finite capacity. Aircraft can be concentrated in three dimensions. Within reason, the only limit on the size of a formation of aircraft is the willingness of a nation to commit resources to its air forces. The size of an army formation is quickly limited by factors of trafficability and area. Relative to the ground, the only obstacles to air movement are the ground, enemy air defenses, and the performance limits of aircraft. So long as an aircraft does not fly into the ground, get shot down, or run out of fuel, there is no limit on the type of ground an aircraft can conceivably cross. Trafficability problems are not nearly as surmountable. Despite the addition of internal combustion engines and high mobility vehicles, armies are generally limited to identifiable avenues of movement. These avenues have finite capacity. While armies move at cross-country or road speed, airpower travels at Mach speeds. Thus, relative to airpower, landpower is less able to concentrate in space and time.

The finite capacity of ground was one of the driving factors behind the German Panzer forces' reliance on bombers to supplant the artillery. Concentration on a narrow front and rapid advance down lines of action meant that road space was at a premium and artillery could not keep up with the fast moving panzers. Air Power, among other benefits, took the pressure of moving much of the artillery off the ground commander, thus freeing road space and reducing the time needed to bring heavy fires to bear.

Likewise, from a land warfare perspective, ground limits maneuver by imposing lines of operation and lines of communication. Airpower is relatively free of these terrain dictates. Air forces can conceivably maneuver and attack the enemy from any direction. This maneuverability gives the aircraft much greater ability to get into the depth of the enemy. And that is the critical aspect of airpower to the corps commander, depth of attack. Airpower, more so than land power, can attack the enemy on his deep flanks and in the depth of his rear area. In this sense, airpower is more maneuverable in space and time than land power.

Airpower gives the corps commander an irreplaceable capability to concentrate massive fires and rapidly attack the enemy in depth, and deep operations are a hallmark of the operations envisioned by Army doctrine. This doctrine, which is the logical extension of 20 years of innovation, is AirLand battle.

The fundamental exposition of U.S. Army doctrine is FM 100-5, Operations. Since the term AirLand battle was coined some 17 years ago, the various editions of this keystone manual have stressed two things: (1.) successful operations are the result of synchronized actions by combined arms and joint forces which create overwhelming combat power; and (2.) that it is imperative to conduct operations in depth, especially by striking the enemy in the depth of his formations. It is in seeking the ability to combine one with the other that the Army comes to rely on the Air Force. The 1993 version of FM 100-5 assumes AirLand Battle.

The concept of overwhelming combat power is not new. Clausewitz referred to the principles of concentration of force and effort against the enemy main center of gravity and acting with speed, avoiding halt or detour.⁸³ This idea of concentration in space and time to achieve decisive results is a firm part of U.S. Army doctrine.

The purpose of overwhelming combat power is to shock and destroy the enemy in order, according to FM 100-5, "to achieve victory at minimal cost."⁸⁴ This is certainly the focus of the 1993 FM 100-5 approach to warfighting. The manual recognizes that the people of the United States expect quick, decisive victory with minimal losses.⁸⁵ Generally, this manual is in concert with the other services and joint doctrine on how this can be accomplished. All are driven by Clausewitz' idea of identifying and destroying the enemy center of gravity.

The difference between Army doctrine and other doctrines is that FM 100-5 carries the concept down through each level of war -- strategic, operational, and tactical. Air Force doctrine seeks to bypass forward, tactical forces, or the operational close battle, as

much as possible and go straight to the strategic center of gravity. FM 100-5 follows a view that parallels Clausewitz' statement:

Still, no matter what the central feature of the enemy's power may be -- the point on which your efforts must converge -- the defeat and destruction of his fighting force remains the best way to begin, and in every case will be a very significant feature of the campaign⁸⁶

FM 100-5 states that, "The ultimate purpose of war is the destruction of the enemy's armed forces and will to fight."⁸⁷ Destruction is the purpose of the application of ways and means to achieve overwhelming combat power. According to Army doctrine, the corps synchronizes tactical fire and maneuver to achieve decisive, operational results. It is the corps which synchronizes the application of combat power to win battles. FM 100-5 describes the four "dynamics of combat power" as maneuver, firepower, protection, and leadership.⁸⁸ Although leadership enables victory, and protection ensures it is available, maneuver and firepower are, to the Army, the inseparable means of achieving decisive victory.

The idea of coordinating military action in a definable battle to achieve decisive results at the operational level of war is a fundamental difference between Army and Air Force doctrine. The crux of the debate between the two services derives from different views of concepts from classical theory. The first of these concepts the Army holds is that of the decisive battle, the second is the role of the deep efforts in winning battles. Both of these concepts are crucial to the Army's doctrine for employing fire and maneuver.

FM 100-5 defines battle as "a series of related engagements," and engagements as "small conflicts or skirmishes, usually between opposing maneuver forces."⁸⁹ Although the definition of engagement emphasizes maneuver forces, the concept of synchronized combat power and the fundamental relationship between fire and maneuver actually drives one to see fire actions as engagements which must be directly related to maneuver. With this in mind, one can better understand both Clausewitz' concept of decisive coordination of engagements and the Army view of the function of the joint fire support system.

Clausewitz saw decisive battle as the surest way to victory. He saw the primary challenge facing the operational commander as setting the conditions necessary to bring about and win a major battle resulting in decisive victory.⁹⁰ All available forces and efforts were to be applied toward this decisive action. The outcome of a battle itself was the cumulative effect of the coordinated engagements fought by the elements of the main force. The only difference between the operations described in FM 100-5 and Clausewitz' description of battle is that in his day forces had to mass in order to create coordinated and concentrated effects. Today, forces which are operationally concentrated may not need to mass tactically to achieve overwhelming, or massive, combat power effects. In particular, the range and precision of fires combined with the broad coverage of command and control systems has made tactical concentration within the fire support system much less necessary.

This ability to mass fires, using both air and ground systems, has introduced a new concept into the Army's thinking. This concept is fighting engagements based on fires rather than maneuver. This idea of fighting with fires is a radical shift from past doctrines which emphasized fire support to maneuver. Beginning with the 1988 version of FM 100-15, the Army ceased to view fires as strictly a means to support maneuver. This concept of the separate employment of fires to accomplish missions is seen in the current FM 100-5 as well. According to FM 100-5, "Integrated as part of the commander's concept, firepower includes the fire support functions that may be used separately from or in combination with maneuver to destroy the enemy."⁹¹ This same view of fires as engagements which achieve battle objectives is seen in FM 6-20. Fire Support in AirLand Battle. FM 6-20 defines fire support as "the collective and coordinated use of indirect-fire weapons, armed aircraft, and other lethal and nonlethal means in support of a battle plan."⁹² In other words, the current Army doctrine views the joint fire support system as being able to achieve objectives which directly contribute to the accomplishment of the corps mission.

If winning battles is the primary means by which the corps accomplishes its mission, it is important to understand how the idea of depth is perceived in the Army's doctrine. In particular, and especially at the corps level, this means deep battle. Although the phrase deep battle previously meant deep engagements to set the conditions for or in support of the close fight, the new doctrine allows for coordinating deep engagements to achieve decisive objectives in and of themselves.

The tenet of depth and the concept of battle are intertwined. According to FM 100-5, "In offensive and defensive operations, commanders fight the enemy throughout the depth of his disposition with fires and with attacks on his flanks and rear."⁹³ This emphasis on deep strikes against the enemy is even further tied to the idea of battle by the concept of simultaneity. FM 100-5 states that, "Depth allows commanders to sustain momentum and take advantage of all available resources to press the fight, attacking the enemy forces and capability simultaneously throughout the battlefield."⁹⁴ This is the idea behind deep battle.

Deep battle had its origins in the evolution of NATO doctrine that went hand in hand with the US Army's development of AirLand Battle. In 1979, NATO recognized the need to attack uncommitted forces before they could be concentrated against the friendly ground forces in close battle. This attack of the second echelon, or follow on forces attack, became part of the U.S. Army concept of deep battle. This concept of deep operations was tied to the idea of setting the conditions for success in the close battle. As late as the 1986 version of FM 100-5, the U.S. Army would state that, "Deep operations at any echelon comprise activities directed against enemy forces not in contact designed to influence the conditions in which future close operations will be conducted."⁹⁵ The 1993 version of FM 100-5 changes all that.

The 1993 FM 100-5 states that, "A well-orchestrated deep battle may help cause the enemy to be defeated outright or may prevent him from achieving his intended objectives."⁹⁶ The doctrine constantly emphasizes simultaneous attack of the enemy

throughout the depth of his formations. Depth and deep operations are seen as essential for success in both offensive and defensive operations.

In offensive operations FM 100-5 states that synchronized simultaneous attack means the corps commander's deep battle may "pursue separate battle objectives," and goes so far as to state that the deep operation may even be the main effort.⁹⁷ The corps commander must coordinate deep, close, and rear operations in order to overwhelm the enemy and achieve decisive results from the battle he is fighting. Likewise, in describing successful defense, FM 100-5 emphasizes that the commander integrates close and rear operations into one battle. With the new doctrine, deep efforts are simultaneous, mutually supporting, and coordinated with the main effort as much as supporting close efforts would be.

The idea of one battle, rather than discreet close and deep operations, is one of the distinctions between the Air Force view of operations and the Army's. Yet the Army is not alone in taking the view that the close and deep fights should be viewed as one set of simultaneous, coordinated engagements in a single battle. The RAND corporation has published under project Air Force a booklet titled The New Calculus. In this book, the team of authors notes that the future air to ground capabilities will make the dramatic results of DESERT STORM seem modest. The writers conclude:

Because of the growing capacity to detect enemy forces at great distance and then with mass, lethality, and precision, we believe the distinction between 'close air support' and 'interdiction' is becoming less meaningful.⁹⁸

Although the authors go on to conclude that airpower alone could stop a major armored incursion by exploiting the capabilities of modern weapons systems, this has another implication as well. The capability to conduct a true air to ground engagement based on real time intelligence has been shown to exist. The question becomes whether the battle commander can coordinate the air to ground engagement so that it is an integral part of his battle. This coordination is described by the concept of synchronization.

Synchronization is a tenet of Army operations. According to FM 100-5, "Synchronization is arranging activities in time and space to mass at the decisive point."⁹⁹ The critical test of synchronization is when maximum economy of force is achieved to produce overwhelming combat power. Synchronization at the corps level means that subordinate units receive necessary support at the right time and place, and that engagements by fire and maneuver forces are coordinated into a battle which achieves the mission objective. Fires, from both Army and joint units, are now viewed as a primary effort in achieving those objectives. This is in contrast to fires merely making preparations for or supporting maneuver efforts. In other words, the fire support system may independently pursue a corps main or supporting effort. That main or supporting effort by fire will probably be a deep attack.

All of this adds up to mission orders for the fire support system. In order to understand this idea of a fire support system as the main effort, it is necessary to examine the Army's concepts of what that system is and what a main effort is. The fire support system is, according to FM 6-20, only a system due to synchronization. The manual states:

The fire support system is a single entity composed of a diverse group of systems, personnel, and materiel, most of which operate in different ways. The methods of providing individual fire support assets such as mortars, field artillery, air support, naval gunfire, and EW may vary in terms of command and control (C²) and tactics and techniques. However, the fire support system must function as a unified force.¹⁰⁰

Unity in the fire support system is embodied in the corps artillery commander who serves as the corps fire support coordinator.

The fire support coordinator is responsible for synchronizing all fires within the system and within the corps commander's concept of operation. This, clearly enough, means that he must coordinate fires in both close and deep engagements. According to FM 6-20:

The principle of unity of command supports the necessity for synchronizing fires within the fire support system and with the commander's scheme of maneuver. The achievement of unity of command is a critical objective of a successful fire support system. Unity of command is established by vesting in the FSCOORD the requisite authority to direct and coordinate all fire support on behalf of the force commander and on the basis of his guidance and delineation of fire support tasks.¹⁰¹

The Army expects airpower to be an integral part of the fire support system. FM 100-5 emphasizes this need for integration in order to fight with fires. The army expects nothing less than full synchronization of the entire joint fire support system to achieve major objectives in order to create a single, decisive battle. This is the concept underlying the emphasis on simultaneous attack throughout the depth of the enemy disposition.

As mentioned, one of the most important roles of this system is fighting deep. In particular, the Army is reliant on the joint fire support system, especially airpower, for the original deep battle missions of second echelon attack, which is a sub-mission of the broader concept of interdiction. In the Army view, as expressed in FM 100-5, "Interdiction destroys enemy forces, delays and disrupts their maneuver, and diverts their resources from the main effort."¹⁰² The target acquisition-strike complex gives tactical commanders the ability to find and detect deep targets with the speed and precision previously available only for close targets. Command and control architecture exists to communicate this information between air and ground forces. The combination should allow the air interdiction capability to be fully integrated into the corps commander's battle.

During an interview on his experience in DESERT STORM, General Frederick Franks emphasized the need for synchronization within the corps area:

So normally, the land commander, the corps commander, is given an area of operations within which he is assigned a mission by the Joint Force Commander. He does not normally have all the organic assets to accomplish the mission in there, and when assets that are not organic to him operate in that area, then since he has the mission responsibility he should also determine the priority of what targets are struck, or what functions are struck by those

external assets. That's the crux of the discussion. What you have emerging is that the Joint Force Air Component Commander will decide, or could decide, through the joint targeting board, priority and numbers of targets struck beyond the fire support coordination line. Now I don't think that is a satisfactory solution.¹⁰³

The current, doctrinal solution for synchronizing air support into the corps deep battle is, in the opinion of an experienced combat commander, inadequate. An analysis of a different system for integrating air and ground operations is useful for determining the maximum synchronization possible. Such a system is that of the U.S. Marines in which the same force includes both air and ground forces.

Under the Marine system, a Marine Air-Ground Task Force, or MAGTF, fights as a unified team. This team is task-organized, self-sustaining, and combined arms. According to Armed Forces Staff College publication number two, Service Warfighting Philosophy and Synchronization of Joint Forces, this organization is capable of sustained operations ashore in support of a land campaign. The MAGTF consists of a Command Element, or CE, a Ground Combat element, or GCE, an Aviation Combat Element, or ACE, and a Combat Service Support Element, or CSSE. If the same capabilities were blended from Army and Air Force elements, this would be an AirLand Battle Joint Task Force. For the purpose of this analysis, the term AirLand Battlegroup will be used.

One unique aspect of this AirLand Battlegroup is that though the MAGTF commander controls both the air and the ground forces in his battle, he does not control all air in the theater of operation, nor does he task organize air below the MAGTF level. In order to understand the nature of this analogy, one could consider the largest MAGTF, which is a Marine Expeditionary Force, the equivalent of a JTF based on an Army corps. The corps commander, as the JTF commander would have one or more wings under the control of a Major General serving as the JFACC. This MAGTF AirLand Battlegroup might be under either a Joint Force Commander or be part of a land campaign under a Land Component Commander. In either case, the first priority of the ACE is support of the MAGTF.

The Marine vision for air operations by the ACE does not differ greatly from those described by Air Force doctrine, in particular offensive air support. The major difference is that the equivalent of the corps commander determines deep attack priorities within his battlespace.¹⁰⁴ According to FMFM 2-7, Fire Support in Marine Air-Ground Task Force Operations, this relationship means that all offensive air support is focused on the main effort.¹⁰⁵ This also means that the GCE and ACE efforts are synchronized into one battle by the simple means of unity of command.

To achieve the same unity of effort within an Army corps' battle, an Air Force composite wing would have to be assigned to the corps creating a JTF. The wing would have to be given command of the ASOC, be provided a BCE to its wing operations center under the command of the corps, and exchange liaison cells with all Army subordinate units. Any offensive air support to the corps during the battle would have to be under the control of this wing. This would create an Army/Air force AirLand Battlegroup in which the offensive air and ground engagements were synchronized into one battle. This organization would contradict Air Force doctrine for command and control of air support to multi-corps operations.

The dilemma of the corps commander is that Army doctrine tells him to integrate all corps controlled firepower into one battle as a main or supporting effort while Air Force doctrine precludes integration. Chapter one discussed the systems for integrating airpower to support ground efforts. The corps commander's maneuver and artillery fire efforts are synchronized differently. His synchronization, as is the Marines', is focused on the main effort.

The Army emphasizes the main effort in its definition of deep operations and interdiction. According to FM 100-5, "interdiction destroys enemy forces, delays and disrupts their maneuver, and diverts their resources from the main effort."¹⁰⁶ This differs slightly from the joint definition of interdiction given in Joint Pub 3-03, Doctrine for Joint Interdiction Operations, which is, "An action to divert, disrupt, delay, or destroy the

enemy's surface military potential before it can be used effectively against friendly forces.¹⁰⁷ The difference, a focus on a main effort, is significant. The main effort is the center of the corps commander's concept of operation. The main effort is established in the commander's concept of operation. The main effort has the objective which is most critical in accomplishing the corps commander's mission. Insuring that the main effort is allocated sufficient combat power is called weighting the main effort. This idea, which is accepted by most armies, is an inherent part of coordinating the ways and means available to the corps commander in order to achieve overwhelming combat power at the decisive time and place and win the battle.

This function, synchronizing the application of combat power in simultaneous close, deep, and rear tactical operations, is the role of the corps. FM 100-15 puts it this way:

Corps are the link between the operational and tactical levels of war. They plan and conduct major operations and battles. They create and maintain the conditions for the success of current battles and set up the conditions for the success of future battles. They synchronize tactical activities including maneuver, fires of their artillery, naval fires, supporting tactical air, and actions of their combat support and combat service support units, bringing together the effects of these separate activities at the decisive time and place.¹⁰⁸

This ability to synchronize effects assumes control over deep operations. This includes interdiction. For this reason, the Army doctrine includes the concept of battlefield air interdiction. This insures that the commander can concentrate effects to achieve overwhelming combat power in one, synchronized battle.

This section has highlighted the difference between the Army approach to synchronization and the Air Force approach. The Army synchronizes the missions and efforts of subordinate units into battles. The Air Force generates a schedule of missions and air packages called an ATO. This does not mean that the Air Force is in the mode of servicing targets. Rather, the Air Force views interdiction as a distinct operation conducted across the width and depth of the theater. The Army wins battles by combining

the dynamics of combat power to overwhelm the enemy with the effects of fire and maneuver used in simultaneous action throughout the depth of the enemy. Under the current system the Army corps cannot give the Air Force mission orders to accomplish a supporting effort in its deep battle. Instead, the Army must nominate discreet targets. This does not fit the Army doctrinal approach to war fighting as it is explicitly stated. An interservice issue remains, whether a balance can be struck between the doctrinal demands of the Army for integrated AirLand Battle and the Air Force insistence on centralized command and decentralized execution. Will the airpower provided by the joint fire support system provide the responsiveness required for the corps commander to win decisive battles? Chapter four will focus on the contradictions between the service doctrines which prevent the establishment of the conditions necessary for true Army/Air Force AirLand Battle.

III. CONCLUSION: AIRLAND BATTLE REVISITED

The investigation so far has shown both compatibility and discord in the approaches of the Army and Air Force to AirLand Battle. Despite arguments to the contrary, the Air Force does place a high premium on providing CAS where and when it is needed. The only caveat the Air Force invokes is not to overweight CAS at the expense of using airpower for more direct operational and strategic results. The main problem is that the Army and Air Force are clearly at doctrinal odds over the question of interdiction at the tactical level.

Doctrinal differences between the Army and the Air Force appear to be incompatible. The Army wants tactical unity of command. Allocating BAI to the corps is at odds with the Air Force desire to maintain centralized control of interdiction under the JFACC. In particular, the Air Force system requires the Army to nominate targets 72 hours out, that in turn means even longer lead times for target priority decisions by the Army, precluding agility. Likewise, both agility and synchronization appear to be excluded when the corps commander does not own the missions and therefore cannot divert them based on an evolving battle. Most significantly, the ability to concentrate overwhelming combat power simultaneously throughout the depth of the enemy is seen as crucial to the Army corps commanders ability to force the enemy to conform to his will through decisive battle. The inability to focus the interdiction effort in the corps deep battle is a sever handicap of the commanders ability to create and execute decisive battle.

At the same time, there is merit ton the Air Force argument. If the deep battle forward of the Fire Support Coordination Line is strictly the purview of the JFACC then the entire interdiction effort becomes synchronized into a coherent deep operation. Likewise, if the interdiction capability is constantly parceled out to the corps level commanders as BAI, then the JTF commander places at risk his ability to mass airpower

for decisive operational effects. This dichotomy is the fundamental difference between the Army and the Air Force views of how to obtain decisive operational results.

The idea of decisive operational results is also the key to the solution. The ground force commander should work with the JFC and JFACC to anticipate where decisive land battles can be imposed on the enemy and won. Once the JFC determines that a land battle is the proper means for achieving an operational objective, these battle areas must be clearly identified in time and space. The conditions necessary to create the decisive battle result from the mutually supporting efforts of the air and ground forces.¹⁰⁹ During the establishment of conditions necessary for the battle, the JFACC will drive the system on interdiction. However, once the battle begins, the corps commander responsible for fighting the battle should be given an apportionment of BAI to integrate directly into his battle plan. During the battle phase, the corps commander must be able to synchronize all aspects of his concept, to include deep attacks. The resulting effects should be as decisively coordinated as if performed by the hypothetical AirLand Battlegroup.

In a similar fashion, the JFC must be able to concentrate combat power to respond to enemy initiatives. The emerging systems must be developed to divert interdiction either away from the BAI role if conditions are changing, or to the BAI role as the situation warrants. The air/ground operating system must fully exploit the agility and responsiveness of the emerging architecture to attack targets based on near real-time intelligence. Likewise, the system must be able to help the corps commander develop decisive battles based on rapidly appearing changes on the battlefield. This means immediate BAI.

These competing ideas challenge the ATO cycle. Army tactical operations are event driven. Combat power is applied and coordinated in response to the developing situation. Targets appear and disappear quickly. The current system, which asks the Army to nominate targets is unsatisfactory. At the operational level of war, this can be overcome by insuring the commanders of all forces have constant dialog as did the great

air/ground teams in World War II and Korea. At the tactical level, this means that the entire joint fire support architecture of acquisition, command and control, and attack systems is sufficiently focused on the anticipated battle areas and receives mission orders from the commander responsible. This effort must be weighted for the duration of the battle to allow the commander to rapidly mass combat power effects from joint lethality systems as part of his battle plan.

Conclusion

The central issue become massing combat power effects for battle without overly decentralizing control of airpower. A reconsideration of the original debates may offer some answers. The applicable debates are control of CAS and BAI by the Army, Army targeting in ATO development, the role of the FSCL, and, training. Each of these can be resolved in order to improve the agility, depth, synchronization, and most of all initiative of the corps without sacrificing the independence or flexibility of airpower.

The corps commander should not be placed in charge of the air units providing CAS or BAI. The Air Force is doctrinally committed to effective CAS, and has demonstrated the ability to execute this mission effectively. There is broader issue of losing the ability to respond to operational change. Major General Henry emphasizes the Air Force officer's commitment to the idea of "no more Kasserine Passes."¹¹⁰ This is a valid concern. Airpower is more decisive when used in mass and under centralized control. More significantly, the JFACC must never lose sight of the mission of maintaining control of the air. Likewise, as General Henry also points out, the JFACC must "weigh all the other requirements which that corps commander might not know about."¹¹¹ It is this same view which causes the Amphibious Task Force commander's JFACC to have a string on the embarked Marine airpower to ensure the maintenance of air superiority and to respond to threats against the fleet. The answer then is to give the corps commander direct access to an air component commander who is still under the

control of the JFACC. This would be the modern version of the field army/tactical air command air-ground team of World War II fame.

At the point that a battle is identified, an air concentration plan would be developed by the TACC and BCE. The JFACC would identify a subordinate air to ground battle commander responsible for controlling air support to the land battle. This air commander would collocate with the Army corps commander to plan and execute simultaneous, coordinated engagements in depth. The air to ground commander would exploit the full capabilities of the FACs, TACPs, ASOC, ABCCC to interface with the executing air units and ensure they remain synchronized with the corps commanders concept. As a commander, rather than LNO, the air to ground commander would bring an authority to the battle the ALO cannot provide. He would also be better equipped to provide the corps commander with the JFACC's concerns and competing priorities.¹¹²

Once the team is established for the battle, the battle area must be defined. This highlights the FSCL debate. The FSCL was created as a permissive fire measure, not a control measure. The original purpose of the FSCL was to allow aircraft to attack targets of opportunity that were sufficiently forward of friendly units to preclude fratricide in the ground force.¹¹³ The reciprocal danger of fratricide was not there due to the limited range of artillery and air defense. The corps commander still needs to be able to denote this freedom of action to the joint fire support system.¹¹⁴ If airpower is to exploit the near real-time intelligence of the emerging systems, the corps commander should be able to ensure the Air Force has freedom of action. At the same time, during decisive battles, the corps cannot be deprived of an integrated deep effort. This returns to the issue of C2.

The air/ground operating system's C2 structure must focus the airspace command and control systems necessary to allow the commander to synchronize his deep battle while coordinating fires to insure fratricide does not take place. The corps fire support system must interface with the air C2, such as the ABCCC. This ensures Army fires do not threaten airman while promoting mutual support and freedom of action for both the air

and ground components of the AirLand Battlegroup. Finally, just as the FSCL clarifies the area in which the Air Force will have greater freedom of action to support the corps, there must be a limitation placed on the corps freedom of action beyond the limits of this battle area. This area between the FSCL and the limits of the corps battle area would be the corps commander's tactical deep fire area.

At the same time, all interdiction outside the corps commanders battle area as defined in time and space would be linked directly to the JFC's interdiction concept and would be the responsibility of the JFACC using the combined expertise of the TACC/BCE.¹¹⁵ This allows the JFACC to use the majority of the interdiction effort as the Air Force intends, direct accomplishment of the operational, that is to say JFC's, interdiction objectives. Major General Henry puts it well:

The biggest challenge I see coming is the unnecessary conflict between Army and Air Force doctrine over the interdiction battle: the Army as it sees itself forging new ground, and the Air Force as it sticks to its combat lessons. The key, again, is trust. We both have the same idea and should be able to work this out into solid joint doctrine. As I said earlier, we need to remember we are integrating one corps' deep battle into a theater plan -- so deep battle doctrine must be a subset of theater interdiction doctrine.¹¹⁶

The corps commander clearly must subordinate his own desires to the higher commander's intent. But there is one twist to that, battle.

If the JFC's intent envisions a decisive battle, that battle must be a set of synchronized engagements which concentrate overwhelming combat power from all sources so the effects are felt simultaneously throughout the depths of the enemy. This is the Army's vision of battle. It is the classic view of battle as well. The corps is the primary echelon for fighting battles. In order to effectively synchronize airpower into this battle, the concept of BAI, as a mission, must be maintained. The idea of mission, rather than targets, is key to the success of airpower in the corps battle.

The requirement to nominate targets for the ATO was an extremely difficult problem for the Army in the Gulf War. According to Major General Arnold, this process created a

five day cycle of targeting which was too slow and bureaucratic for the Army method of operations.¹¹⁷ General Franks concept of mission orders within the corps deep battle area seems to be the best solution. By handing the mission over to the Air Force as a supporting objective for a battle envisioned in the corps commanders concept, the struggle for acquisition means would be reduced, and the revalidation dilemma could be solved. In addition, by putting the targeting process in Air Force hands earlier, the cycle could conceivably be reduced. As Major General Arnold pointed out, the questions should be, "How quick do we need it and how quick can we make it."¹¹⁸ Most importantly, this would allow the air and ground forces of the AirLand Battlegroup to conduct the fight as an agile, mutually supporting team, lead by commanders who have trust and confidence in one another.

The final issue, trust, is crucial. Both General Franks and Major General Henry pointed this out. Major General Arnold noted that ARCENT had to replace the leader of the BCE at the CENTCOM TACC with an experienced fire support officer in order to provide the appropriate skills for effective Army representation to the JFACC.¹¹⁹ At the beginning of this study Majors Locke and Gorman's reports of inadequate training and education of the ASOCs and BCEs prior to the Gulf War were cited. Units without adequate training and qualified team members are hollow. No matter what the doctrine, everyone must know the procedure, know each other, and practice together.

Army doctrine expects the Air Force to provide force application throughout the depth of the corps battlefield. The Army expects the air to ground engagements to be completely integrated into one, simultaneous battle. In order for airpower to achieve this goal for the Army, the air/ground operating system must create an AirLand Battlegroup along the lines of an amphibious task force in order to concentrate overwhelming combat power without detracting from the unique capabilities that result when each service has maximum freedom of action. The key to this AirLand Battlegroup is a commander to commander relationship built on mutual trust and confidence.

Appendix A: Transcript of an interview with General Frederick M. Franks, Commanding General, US Army Training and Doctrine Command, conducted at Fort Leavenworth, Kansas, on 28 OCTOBER 1993.

Major Robinson: Sir, I sent you my basic questions. I'm focusing on the overall integration of air and ground operations, in particular the ability of the Army to get responsive air support. In the questions I talked about "BAI," I'm not focused so much on the term or who picks the target in the final sense, but more on what happened after you received your allotment of air sorties in DESERT STORM. Were you able to get airpower to do what you felt it should be able to do for you within your commander's intent?"

General Franks: We never got an allotment. The term BAI was not recognized by CENTCOM as a valid term in the theater, therefore there were only two classes of air, close air support and interdiction. Interdiction target priorities and shifting of target priorities was centralized under the control of the Joint Force Air Component Commander, his planner, or the CINC himself. We did not get a category of air called close air support, except in the case of the First Cavalry Division for their operations around the RUGI POCKET, their feints and demonstrations, until about one week before the start of the ground war. I had asked for the fire support coordination line to be pushed north of the border between Iraq and Saudi Arabia; that was denied because the theater wanted to control all sorties being flown into Iraq, to include attack of targets just immediately in front of VIIth Corps. Now I was free to nominate targets, but the correlation between those that we nominated and those that were struck was quite poor.

Major Robinson: Sir, I know in reading some of the other sources it has been said that less than a third of the targets you nominated were struck and usually not in the priority that you had nominated.

General Franks: Correct.

Major Robinson: With this in mind, what did you see as the big dichotomy between how you thought airpower would be a part of your ability to focus combat power versus what you have described.

General Franks: One of the difficulties is the current procedural doctrine that the Army Land Commander nominates a list of targets to be struck. I think that is a bad way of doing it. I think we ought to stop doing it that way. The Army Land Component Commander cannot generate the intelligence over the course of a battle that's going to last a week, two weeks, a month, to have the targeting accuracy necessary, and therefore when the target list is submitted some of the targeting data is quite old. Over time the Air Force loses confidence when they fly to those targets and there is nothing there. I believe

what the Land Component Commander, the ground commander, ought to do is describe the effect on the enemy forces he wants to have and then let the Air Component Commander decide the types of airplanes, the numbers of airplanes; how long it's going to take, in other words, the air to ground tactics to achieve that target effect. I'll give you an example. My priorities in front of VIIth Corps were to destroy the Iraqi VIIth Corps' C2 capabilities so that they would not be able to tell the Republican Guard both the direction and size of the attack that was about to hit them. My second priority was to destroy artillery that was capable of delivering chemical munitions and was within range of the breach that the Big Red One was about to go through. Now I even visited the Director of Operations, Major General John Porter down in Riyadh and said, "That's what I want." "Now I don't know how many sorties that's going to take." "As a matter of fact, I don't even know if I can, and probably cannot, generate as good a targeting for those two priorities as you can in Riyadh." This was because of the national overhead and a lot of the systems that were available to CENTCOM and to the JFACC that were not available to me. We never could make that happen. We went back to the same old target list and two inch air tasking order, and as a consequence most of the artillery that was knocked out we did with our own artillery. The air was successful in destroying the C2. So I believe our doctrine is incorrect. Maybe more the tactics, techniques and procedures that require the Army to submit these long target lists when in fact those target lists ought to be developed by a group of targeteers with access to near real time intelligence of the target area. The ground commander ought to describe the effects required in order to synchronize those effects with the effects of attack or defense by elements under his direct control.

Major Robinson: This takes me to my second line of questioning. During the execution of the operation did you have open communications with an air counterpart. I know you had TACPs that moved with you, but did you have the ability to go to an Air Force commander, commander to commander, as did, for example, General Patton, who was able to meet almost daily with his air counterpart?

General Franks: No, I did not. I was visited once, I believe it was -- I forget the day -- Monday or Tuesday, since we attacked on Sunday and the cease-fire was on Thursday. I was visited once by Brigadier Mike Hall who was very sympathetic to the procedures I just described, but I had no discussions with anyone else other than my normal Tactical Air Control Parties at corps during the course of the four day fight. Nor did I have any control over any interdiction that went on by anything other than Apaches or ATACMS missiles that I controlled. Now we did get allocations of close air support that we were able to move around, however the weather was so bad, and they were flying at an altitude of 10,000 feet, so it was difficult for the close air support to operate as close air support, and the division commanders and the cavalry regiment commander tended to push the close air support out 20 to 40 kilometers out in front of their units.

Major Robinson: With that in mind, because you were reliant on your normal TACP and Air Support Operations Center to coordinate your operations, having come out of Europe,

were you able to get a good lash-up and train-up with the TACP and ASOC that were to support you.

General Franks: Inside the corps I was very pleased with the ASOC and all the Tactical Air Control Parties. I thought they acted very effectively. The one exception with that would be with the British. And again, the reason I wanted the fire support coordination line moved North was to give us . . ., and allocate to the corps close air support prior to the attack, I wanted practice. I wanted to destroy Iraqi artillery that happened to be in the area we were going to attack in, but I also wanted to give our units and our Tactical Air Control Parties practice at controlling close air support. Now we did not have the opportunity to train with close air support because by the time my units closed into theater and were ready to do these types of things the air campaign began and then, of course, there were other priorities and they couldn't be siphoning off air to do the training. The exception to that was the Second ACR, who got some training, but none of the other units did, and therefore the refusal to push the fire support coordination line north and give us the opportunity to do close air support, in my judgment, was a bad mistake. None the less it happened.

Major Robinson: Yes Sir. On the same line, since in the lash-up experience you had the ASOC and TACP worked well, do you see greater need to improve the lash-up between the Air Force commanders and the Army commanders, and, if so, do you see that happening?

General Franks: I think the difficulty comes in when you don't have a ground component commander who can discuss with the Joint Force Air Component Commander, in other words, when the Joint Force Commander is dual hatted as both the ground force commander and the Joint Force Commander it is very difficult for him to do both, especially when you have a multi-corps operation. I believe the Army and the Air Force have no difficulty understanding what needs to be done. The difficulty goes back to the discreet target list versus effects to be achieved. I really believe that if the Army commander would describe the effects to be achieved, and if there then were a dialog between the Army and the Air Force as to how and when that's going to be achieved, there would be a probability that it would be done at the particular time and the Army commander then could depend on that, and then use his own organic assets in combination with that to achieve the mission he was assigned by the Joint Force Commander. Right now, it is difficult for the land commander . . ., lets say for the probability to be high enough, for the land commander to rely on the effects being achieved, since they could be shifted somewhere else. I also believe that the air tasking order, we should work to get that in near real time as opposed to 48 or 72 hours.

Major Robinson: Sir, you've covered a lot of things I had saved for my broadest question. You focused a lot on the doctrine. You said you were happy with the organization. In many ways the organizational problems at the echelons above corps were a result of not going with what is recommended in our emerging joint doctrine as far as a separate ground component commander who has a ground commander's intent and is able to

dialogue with an Air Force commander versus, as you said, nominating a laundry list of targets.

General Franks: Right.

Major Robinson: That leaves one area, training. Based on your experience, are there specific training needs at the corps and echelons above corps that you did not experience before you went to the desert?

General Franks: No, our difficulty coming out of Europe was that we had trained in the NATO Air System where you had three distinct classifications and allocations of air: close air support; BAI; and AI. You had a fire support coordination line, inside of which was normally the province of echelons subordinate to the corps. From the fire support coordination line to the reconnaissance and interdiction phase line, or RIPL, was the area of BAI. In that area, whatever BAI the corps commander was allocated, and that wasn't his decision, and I had no problem with that in the Gulf either. What I was arguing for was, beyond the FSCL, out to a point at the end of my corps responsibilities that I was given. If you fly two sorties in there I would like to determine the priority of what they hit, not somebody else, since I had the mission, not somebody else. That was the crux of the argument, to this day it's the crux of the argument. So normally, the land commander, the corps commander, is given an area of operations within which he is assigned a mission by the Joint Force Commander. He does not normally have all the organic assets to accomplish the mission in there, and when assets that are not organic to him operate in that area, then since he has the mission responsibility he should also determine the priority of what targets are struck, or what functions are struck by those external assets. That's the crux of the discussion. What you have emerging is that the Joint Force Air Component Commander will decide, or could decide, through the joint targeting board, priority and numbers of targets struck beyond the fire support coordination line. Now I don't think that is a satisfactory solution.

Major Robinson: That leads me to a final question. On the ground, within Army forces, we are very clear about who the main effort is. Do you feel that with the requirement to use a target list there was a clear understanding between the Army and the Air Force as to when the ground campaign became the main effort, versus their own priorities within the air campaign or air plan.

General Franks: Now that's an awful good question. We say in our doctrine that a commander should usually designate a point of main effort in a fight. That's got to be the Joint Force Commander. Once that is so designated it normally clarifies priority of use of combat assets within the theater. For example, in DESERT STORM, if the destruction of the Republican Guards during phase four of the four phased campaign was the point of main effort then there were a variety of ways to do that. Back to the Iraqi VIIth Corps which was between us and the Republican Guards. I would argue for example that rather than direct attack of the tanks in the Republican Guards its much more important to destroy the C2 apparatus of the Iraqi VIIth Corps so they don't tip off the Republican

Guards and allow them to get their artillery and direct fire systems repositioned to confront an attack by the U.S. VIIth Corps. And that's why I was so insistent on the Iraqi C2. But what happened was the priority went to killing tanks in the Republican Guards. Now we eventually got enough air so that they were able to do it both, but that's why I was so insistent on that. It's how you set up the battle. The designation of the point of main effort by the Joint Force Commander can clarify a lot of those priorities for use of combat assets.

Major Robinson: Sir, Lieutenant General Cushman recently published a pamphlet in which he makes some recommendations for improving the relationship between the Joint Force Commander, the Ground Component Commander, and the Air Component Commander. With that in mind, do you think the current systems are in place to make the changes necessary to improve the relationship between the Ground Component Commander, the Air Component Commander, and the Joint Force Commander so that the corps level commander gets the air support he needs.

General Franks: The situation I'm describing to you will probably happen when you have a multi-corps theater. If you commit a single U.S. corps in a theater, normally the Joint Task Force Commander will also be the corps commander. Then you don't have a problem, because that Joint Task Force Commander, that corps commander, has the commander of the Air Forces in theater and that is not a problem. Where you have a problem is if you'd have a major regional contingency where you have multi-corps size ground units, whether they be Marine Corps/Army units or two Army, and you do not have a land component commander but you have a CINC who is dual hatted as a Land Component Commander, then I think you're asking for difficulties. I would argue that you need a Land Component Commander who is coequal to the Joint Force Air Component Commander, who then operating at the same level can talk about the conduct of land/air campaign, and they would then sort out a lot of these difficulties. Our problem in the Gulf was that we had never solved that major headquarters dilemma.

Major Robinson: Yes Sir. In conclusion, historical studies show that that's tended to be a case that often happens. In addition to the examples that I sent up of Generals Patton and Weyland and Generals Ridgeway and Partridge who had effective air support when you had coequal commanders who meet on a regular basis, General Slim, in his book, talks of the problems which developed when he and the air commander were physically separated. So that is a recurring theme. Sir, I appreciate your time. Let me sum up and insure that I have captured your main thrust. The relationship between a ground component and an air component commander, who have their distinct responsibilities, is critical. In particular, because the Ground Component Commander can clarify his intent in terms of effects he would like from airpower versus nominating lists of targets, target guidance matrixes, and all the other nice tools that we have.

General Franks: Here's my own vision for depth and simultaneous attack. We have the capability now for doing two things. One is to absolutely dominate the airspace in a given theater. So you don't have to worry about the enemy's air force. Secondly, the capability

in near real time to attack targets throughout the depth and space of the battlespace. What's slowing us down is the manufacturing of target lists when in fact I think if commanders and staffs would only talk in terms of effects they wanted to achieve they would be a lot better off. After all, that's the way we plan ground operations. When we plan ground operations. The subordinate commanders in a division, for example, don't nominate exhaustive target lists to the Divarty and then have the division commander apportion out artillery to attack some discreet target list. We talk about priority of fires, we talk about objective areas, and so forth. Now inside the artillery system they develop discreet target list because they have the targeting apparatus to do it, so does the Air Force. Why must the Army continue to insist that we need to give discreet targets to the Air Force? Now close air support, that's okay because your looking at the stuff, but not deep. We ought to describe effects, "keep this force out of the fight for the next 48 hours." That all you should say. Or, "This force that's up here, I would like to destroy their," oh, your talking battlefield operating systems. Say, "I would like you to go after their command/control apparatus and their combat service support, I'll take care of the rest of it." See for example, in the Gulf, what we were after was artillery and command/control. There were 1600 tanks in VIIth Corps, with some great tankers, good out to 2500, 3,000 meters. So I figured our guys could pretty much take care of the Iraqi tanks, and they did. But it was the artillery, chemical capable, and the C2 apparatus, especially at the beginning, that we had to get rid of.

Major Robinson: Sir, it's clear from your experience, and from your position now and your responsibilities, that this is going to be an area of great concern to you for a long time. From the things that I've been able to study, not just looking at the DESERT STORM operations, but also in looking at the emerging doctrine and literature that has come out of there, it seems that a lot of the debate focuses on definitions and on control measures, but it does not seem that a lot of the debate focuses on the fundamental principles as you have. Is the air going to achieve the commander's intent? Rather than a process for hitting specific targets.

General Franks: You've got it right, that's exactly the point. So here we are. General Mike Loh over at Air Combat Command and I have had this discussion. We agree on this. Here we are with the most powerful land and air forces in the world; the air forces that can dominate the skies and absolutely have mastery of the airspace, and the ground forces that can pretty much go and do what they want to do, supported by the air. We have targeting apparatus that is increasingly capable of detecting where the enemy is and moving that information around very, very rapidly. Why can't we, and shame on us if we allow procedures and lines on the map to stop us, conduct a campaign in near real time, that attacks the enemy simultaneously throughout the depth of the battlespace. We've got a lot of procedures that are getting in the way. The discreet target list is one. The three day ATO is another. Successive echelons where targeting and so forth has to pass. I'll give you an example. We did a thing at Fort Sill, you can get it, it's called JAYHAWK THUNDER. This is a reverse thing, where an F-15's flying . . . , now if this is Basrah, an F-15's flying around here and an SA 2 site lights up. Now about 120 kilometers away there is an ATACMS capable MLRS battery. Now the F-15 notices that SA 2 site lit up.

It took two hours to get that targeting data to that battery. Now it had to go to the ABCCC, back to Riyadh, who figured who's available to shoot it, to Third Army, to VIIth Corps. Call out to the artillery, can't get 'um. Got to go through an airborne relay. You know all that, this happens all the time. Finally, they get the mission to the battery. They stop, reload the missile and a half-hour later they shoot and kill the SA 2. Fortunately the SA 2 stuck around for two and a half hours so they could kill it. Now why in the hell was all of that necessary? See now that's the opposite. That's Army organic systems in support of the air, which is the opposite of the way we usually think of it. But that's 120 kilometers. So we need to be able to do that. If both of us together can orchestrate this whole thing, that's what we ought to be after. Not getting hung up on definitions, and lines, and target lists. So we need to break some paradigms. Papers like this your working on are key. I really encourage you to think beyond the boundaries of definitional stuff to figure out how we should really do it, then you'll make a major contribution. It's a tough one. There are not evil people working in it, its just that we get all tripped up procedures and past paradigms. The speed and lethality of the new weapons systems, the reach of the weapons systems, combined with the speed and the accuracy of the targeting system, has given us a capability that far outstrips the old procedures. We essentially have World War II procedures. It's still the old World War II paradigm. "What do you want Army?" Okay, nominate a target." Then when it way up through all the post offices and every body stamps it, they send it in to the Joint Force Air Component Commander and he says, "Okay, we'll hit it." It may be week old information by that time.

Major Robinson: Sir, one thing I've found in my research that has changed are the relationships such as that between Generals Ridgeway and Partridge where the Air and Ground Component Commanders could climb in a light aircraft together every day or so and work things out.

General Franks: Right, you should do that. That sort of thing would help.

ENDNOTES

¹United States Army, FM 100-5, Operations (Washington D.C.: Department of the Army, 1976).

²*Ibid*, p.

³United States Army, FM 100-5, Operations (Washington D.C.: Department of the Army, 1993), pp. 2-16 - 2-19.

⁴Richard P. Hallion, Storm Over Iraq (Washington D.C.: Smithsonian Institute Press, 1992), pp. 206-209.

⁵Transfer of the A-10 to the U.S. Army was elevated to the floor of congress.

⁶Carl Pivarsky, "Dangerous Doctrine," Military Review 9 (September 1993), pp. 42-51.

⁷In this case, corps equivalents were the XVIII Airborne Corps (US), the VII (US), JFC-N, MARCENT, and JFC-E.

⁸Hallion, pp. 206-209 and p. 356, notes 11-14.

⁹Department of Defense, Conduct of the Persian Gulf War (Washington D.C.: United States Government Printing Office, 1992), pp. 107 - 114.

¹⁰Col. John Warden, quoted in Michael A. Palmer, "The Storm in the Air: One Plan, Two Air Wars," Air Power History 39 (Winter 1992), p. 26.

¹¹Pivarsky, pp. 46-47.

¹²Frederick Strain, "The New Joint Warfare," Joint Forces Quarterly 2 (Autumn 1993), pp. 19 - 22. Colonel Strain is assigned to the Strategic Planning Division, Office of the Deputy Chief of Staff for Plans and Operations, Headquarters, Department of the Air Force. Colonel Strain also refers to the FSCL as the Fire Support Control Line, adding: "Since the only common point of reference available to all types of forces is time (provided by synchronized space satellites), the new boundaries, perhaps drawn in time, will serve as the dividing lines of the future. Centralized command and control of targeting under the Joint Force Air Component Commander (JFACC) is only the first step in a process that must exploit new technologies."

¹³Bob Locke, "An ALO's First Warfighter," The Air Land Bulletin 92-1 (31 March 1992), pp. 12 - 13.

¹⁴Tom Gorman, "Top Down Planning, The ATO and Close Air Support," The Air Land Bulletin 91-2/3 (30 September 1991), pp. 11 - 14. For ALSAC position see Ken Dahl, Ted Kresge, and Max DeSosa, "A Responsive Air Tasking Order," The Air Land Sea Bulletin 92-4 (31 December 1992) p. 23.

¹⁵Brian W. Jones, "Close Air Support: A Doctrinal Disconnect," Airpower Journal 4 (Winter 1992), pp. 68 - 70.

¹⁶Ibid.

¹⁷Rolf W. Sandbakken, "Responsive Air Support - Another View," Air Land Sea Bulletin 93-2 (June 1993), p. 12.

¹⁸Ibid. Authors note: Section III looks at the Marine example.

¹⁹John H. Cushman, Organization and Operational Employment of Air/Land Forces (Carlisle Barracks: U.S. Army War College, 1984).

²⁰Ibid, pp. vii - viii.

²¹The Joint Staff, Joint Pub 3-09, Doctrine for Joint Fire Support Final Draft (Washington D.C.: Joint Chiefs of Staff, 1991).

²²FM 100-5, Operations, p. 2-2.

²³Ibid, pp. 6-13 to 6-15.

²⁴Ibid, pp. 2-6 to 2-9.

²⁵Ibid, 2-10 to 2-12.

²⁶Ibid, 2-6.

²⁷Ibid, 2-7.

²⁸Ibid, p. 2-7, Note: this study will not examine whether the use of airpower extends the depth of operations in terms of resources.

²⁹Ibid, 2-8.

³⁰One could make a case that the relationship described in this paper would better serve the rapid formation of Joint Task Forces based on US Army corps, thus providing versatility over the status quo.

³¹United States Air Force, TAC Regulation 55-45, Operations, Tactical Air Force Headquarters and the Tactical Air Control Center (Langley Air Force Base: Tactical Air Command, 1988), p. 5-1.

³²United States Air Force, Air Force Manual 1-1: Basic Aerospace Doctrine of the United States Air Force, Vol. II (Washington, D.C.: United States Air Force, 1992), p. 165.

³³Ibid, p.166.

³⁴Ibid.

³⁵Henry Bosley Woolf, ed. in chief, Webster's New Collegiate Dictionary (Springfield: G. &C. Merriam Co., 1976), p.987.

³⁶United States Air Force, Air Force Manual 1-1: Basic Aerospace Doctrine of the United States Air Force, Vol. I (Washington, D.C.: United States Air Force, 1992), p. 13.

³⁷Ibid.

³⁸Ibid.

³⁹For example, in United States Air Force, "JFACC Primer" (Washington DC: Deputy Chief of Staff, Plans and Operations, Headquarters, United States Air Force, 1992), one can read: "Unity of effort through centralized control of theater air assets is the most effective way to employ airpower. The current Joint Force Air Component Commander concept provides a Joint Force Commander the means to exploit the capabilities of airpower in a theater air campaign." (p. 2)

In the same publication the statement, "All operations beyond the FSCL should be under the purview of the JFACC."(p. 25) In the same vein, AFM 1-1 states: "The inherent speed, range, and flexibility of aerospace power combine to make it the most versatile component of military power. Its versatility allows aerospace power to be rapidly employed against any level of objective from strategic through theater, to include tactical employment in support of other component forces' objectives. The versatility of aerospace power may easily be lost if aerospace forces are subordinated to surface elements of power."(pp. 6 - 7)

AFM 1-1 includes "priority" as a tenet of aerospace power: "Effective priorities for the use of aerospace forces flow from an informed dialogue between the joint or combined commander and the air component commander. the air commander should assess the

possible uses as to their importance to (1) the war, (2) the campaigning, and (3) the battle. Air component commanders should be alert for the potential diversion of aerospace forces to missions of marginal importance."(p. 8)

⁴⁰Sometimes referred to as the ACC for Air Component Commander.

⁴¹United States Army, FM 100-26, The Air-Ground Operations System (Washington DC: Department of the Army, 1973), chapter 5, section II, pp. 5-2 to 5-7. Authors note: this manual was written with the assumption that a field army headquarters would be active. Obviously, having been written in 1973, much of this manual is outdated. For all practical purposes, the current Army Air-Ground System, as it pertains to air to ground attack, is found in the doctrine for the fire support system.

⁴²William Welch, "Observations on Joint Combat Operations at Echelons Above Corps," TAC-TRADOC ALFA Bulletin, 31 March 1992, p. 14.

⁴³United States Army, FM 100-7, The Army in Theater Operations (Draft) (Fort Monroe: Headquarters, TRADOC, 1990), pp. 2-43 - 2-44.

⁴⁴United States Army, FM 100-15, Corps Operations (Washington D.C.: Department of the Army, 1989), p. F-1.

⁴⁵Welch, p. 14. Major General Steven Arnold, who served as the ARCENT G3 during operations in the Gulf War stated in an interview with the author that reorganization of the BCE under an experienced Field Artillery officer was critical to improving the Army's ability to have targets hit by the Air Force. Major General Steven Arnold, interview by author 22 November 1993, tape with transcript, Washington DC.

⁴⁶This is significant in two ways. First, in the Persian Gulf War, targeting priorities for all air operations excepting CAS were developed by the JFACC, in consultation with the JFC, as the sole representative to the JFC for employment of air. Without a land component commander, five different corps equivalents nominated targets through the BCE, which was not collocated with ARCENT Headquarters. This meant that the corps commanders had little chance for personal interaction with the JFACC, and that the Third Army G3 had to act as a go between for them. Ultimately, the Deputy CINC, Lieutenant General Calvin A. H. Waller was appointed as the head of the Joint Targeting Board, but this was after the Master Attack Plan had been developed. Secondly, because there is no commander to commander relationship between the corps and the JFACC, there is less of a chance for the corps commander to communicate his intent as a broad concept of effects and priorities rather than targets.

⁴⁷TACR 55-45, p. 5-2. Author's note: Although Battlefield Air Interdiction (BAI) has been a recognized form of apportionment and allocation of air support in both Europe and Korea, CENTCOM did not use the concept. The Air Force, as will be discussed later in the study, does not support the Battlefield Air Interdiction concept.

⁴⁸The organization of TACPs is not set at the corps level. With this in mind, there is a TACP of sufficient strength to allow the corps commander to shift efforts collocated with the command group and a larger party integrated with the fire support cell at the corps tactical (or forward) command post. There may also be a TACP with the rear command post. For the purpose of integrating air delivered firepower into the corps plan, the ASOC is the critical node.

⁴⁹United States Readiness Command, United States Army Training and Doctrine Command, and United States Air Force Tactical Air Command, USREDCOM Pam 525-8, TRADOC Pam 525-45, TACP 50-29, General Operating Procedures for Joint Attack of the Second Echelon (J-SAK) (Fort Monroe Virginia: TAC-TRADOC Air Land Forces Application (ALFA) Agency, 1984), p. 4-2.

⁵⁰AFM 1-1, vol. 1, p. 5. Author's note: As previously noted, the Air Force view is that all interdiction should be controlled by the JFACC. In an interview conducted by the author on 22 November 1993, Major General Larry L Henry, USAF, emphasized the view that there should be one interdiction effort. He also expressed the belief that cross-FSCL Army Tactical Missile System and Navy cruise missile fires should be integrated into the ATO cycle. The implication of this quotation, that all air and aerospace systems should be available to or directly controlled by the JFACC, is the source of heated debates between the services and is well beyond the limits of this study.

⁵¹Ibid.

⁵²Ibid.

⁵³Ibid, p. 6.

⁵⁴Ibid, p. 8.

⁵⁵Joint Chiefs of Staff, Joint Pub 3-09, Doctrine for Joint Fire Support (Washington D.C.: The Joint Staff, 1991), p. iii.

⁵⁶Ibid, p. I-15. Joint fire support is considered a type of joint fires, which is an emerging concept in joint doctrine.

⁵⁷Ibid, p. I-1.

⁵⁸Ibid.

⁵⁹Art Breihaupt, et al, "Close Air Support: Who Should Do It?" The Air Land Sea Bulletin, No. 93-3, September 1993, pp. 4 to 13.

⁶⁰AFM 1-1, vol. I, p. 13. See also "JFACC Primer," pp. 17 - 18.

⁶¹AFM 1-1, vol. II, p. 166.

⁶²Joint Chiefs of Staff, Joint Pub 3-03, Doctrine for Joint Interdiction Operations (Test) (Washington, D.C.: The Joint Staff, 1990), p. II-2.

⁶³Ibid, p. IV-1.

⁶⁴Ibid.

⁶⁵Limiting interdiction to the operational, that is theater of operations, level would mean that the corps commander would only be involved in attack of second echelon forces which were operational formations, for example, second echelon armies from a soviet model.

⁶⁶Joint Pub 3-09, p. GL-8.

⁶⁷Joint Pub 3-03, pp. V-5 to V-6.

⁶⁸Notes in possession of the author, "Proposed Answers for Maj. Gen. Henry, Interview by Maj Charles Robinson, USA," provided in conjunction with interview of Major General Henry by author, conducted 22 November 1993, Washington DC. The note goes on: "Let me give you an example in Army terms: What would division commanders think about separate brigade-level maneuver planning? What would corps commanders think of the idea? Airpower was not meant to be applied in this manner -- it waste the resource. In the end it will needlessly cost lives -- soldiers' lives."

⁶⁹The USAF was no more satisfied with the excesses of the Joint Targeting Board during DESERT STORM than the Army was. See Deputy Chief of Staff, Plans and Operations, United States Air Force, "JFACC Primer" (Washington DC: Headquarters, United States Air Force, 1992), pp. 22 - 23.

⁷⁰Rick Atkinson, Crusade: The Untold Story of the Persian Gulf War (New York: Houghton Mifflin Company, 1993),p. 218 - 219.

⁷¹Ibid, p. 218.

⁷²General Frederick M. Franks, interview by author, 28 October 1993, tape recording with transcription, Fort Leavenworth, Kansas. Author's note:

⁷³Major General Steven L. Arnold, interview by author, 22 November 1993, tape recording with transcription, Washington DC. Major General Arnold points out that the Army G3 and G2 had to begin target development 96 hours out in order to produce a collection plan early enough to gain access to the highly demanded national and theater intelligence sources. The problem was enhanced by the fact that ARCENT had to compete again for the resources in order to validate the targets. According to Major General Arnold, only 12% of the ARCENT nominated targets were hit.

⁷⁴Interview with Major General Henry, 22 November 1993.

⁷⁵Interview with General Franks, 28 October 1993.

⁷⁶AFM 1-1, p. 6.

⁷⁷Joint Pub 3-03, p. V-4.

⁷⁸John H. Cushman, Thoughts for Joint Commanders (Annapolis: John H. Cushman, 1993), p. 37.

⁷⁹Richard H. Kohn and Joseph P. Harahan, eds., Air Interdiction in World War II, Korea, and Vietnam (Washington D.C.: Office of Air Force History, 1986), pp. 41-43.

⁸⁰Jonathan M. House, Toward Combined Arms Warfare (Fort Leavenworth: U.S. Army Command and General Staff College, 1984), p. 132.

⁸¹Richard H. Kohn and Joseph P. Harahan, eds., Air Superiority in World War II and Korea (Washington D.C.: Office of Air Force History, 1983), p. 36.

⁸²According to legend, Gordius, the king of Phrygia, tied a complex knot as a puzzle. Although many wise men had tried, none had been able to untie the knot. Alexander the Great, while in training to become king of Macedonia, was placed before the knot and challenged to untangle the ropes. Alexander solved the puzzle by drawing his sword and slicing the ropes apart in a single blow.

⁸³Karl von Clausewitz, On War, Michael Howard and Peter Paret, eds. (Princeton: Princeton University Press, 1984), p. 617-637.

⁸⁴United States Army, FM 100-5 (Washington DC: Department of the Army, 1993), p. 2-9.

⁸⁵Ibid, p. 1-3.

⁸⁶Clausewitz, p. 596.

⁸⁷FM 100-5, p. 2-4.

⁸⁸FM 100-5, p. 2-10.

⁸⁹FM 100-5, p. 6-3.

⁹⁰Clausewitz, p. 635.

⁹¹FM 100-5, p. 2-10.

⁹²United States Army, FM 6-20, Fire Support in the AirLand Battle (Washington DC: Department of the Army, 1988), p. 1-2.

⁹³FM 100-5, p. 2-7.

⁹⁴Ibid.

⁹⁵United States Army, FM 100-5, Operations (Washington DC: Department of the Army, 1986), p. 19. Hereafter 100-5 '86

⁹⁶FM 100-5, p. 6-14.

⁹⁷FM 100-5, p. 7-12.

⁹⁸Christopher Bowie, et al, The New Calculus (Santa Monica: RAND, 1993), p. 52.

⁹⁹Ibid, p. 2-8.

¹⁰⁰FM 6-20, p. 1-2.

¹⁰¹Ibid, p. 1-6.

¹⁰²FM 100-5, p. 2-18.

¹⁰³General Frederick M. Franks, interview by author, 28 October 1993, tape recording with transcription, Fort Leavenworth, Kansas.

¹⁰⁴The command and control of the MAGTF air is in fact divisible. For example, the Navy officer commanding the amphibious task force which is delivering and supporting the MAGTF in an amphibious operation has a JFACC. This JFACC has the authority to divert any Marine aircraft still operating from ships.

¹⁰⁵United States Marine Corps, FMFM 2-7, Fire Support in Marine Air-Ground Task Force Operations (Washington D.C.: Department of the Navy, 1991) pp. 2-13 to 2-14.

¹⁰⁶FM 100-5, p. 2-18.

¹⁰⁷Joint Chiefs of Staff, JCS Pub 3-05: Doctrine for Joint Interdiction Operations (Test Pub) (Washington D.C.: Joint Chiefs of Staff, 1990), p. GL-2.

¹⁰⁸FM 100-15, p. 1-0.

¹⁰⁹It is beyond the scope of this study to debate the issue as to whether airpower could achieve the theater decision independent of ground maneuver.

¹¹⁰Major General Larry L. Henry, interview by author, November 22 1993, tape with transcript, Washington DC.

¹¹¹*Ibid.*

¹¹²During the 22 November interview, Major General Henry emphasized the requirement for the Air Force to ensure quality manning in the TACPs and ASOCs. He also noted that the Air Force "must keep working on a better understanding of the Army and the way it operates through our military schools." Author's note: This concept is being demonstrated by the composite wing located at Pope Air Force Base which trains in the role of air component to a corps JTF with the XVIII Airborne Corps on Fort Bragg.

¹¹³Fratricide has developed as the common usage term for friendly troops unintentionally attacking other friendly troops.

¹¹⁴During the Second World War, J-SAK interdiction efforts were predominately accomplished by air patrols. The current target acquisition architecture has no historical corollary.

¹¹⁵The implication here is that the Land Component Commander must be prepared to provide supporting fires as part of the Joint Interdiction Effort. This emphasizes the need for dialog just as much as the reciprocal use of air to support maneuver.

¹¹⁶Interview with Major General Henry, 22 November 1993.

¹¹⁷Major General Steven L. Arnold, interview with author, tape with transcript, 22 November 1993. General Arnold recognized the need for the ATO both as a resource management tool and as an airspace control plan. Likewise, General Arnold expressed the view that the CAS system of push deep, pull close was appropriate based on the threat and time-space factors. General Arnold's concern was that the joint fire system has failed to exploit the capabilities of the information age, an idea he attributes to Alvin Toffler. The general was particularly concerned about Air Force desires to integrate Army missiles and helicopters into the ATO. According to Major General Arnold, this would not provide the flexibility necessary to respond to the flow of the land battle.

¹¹⁸Ibid.

¹¹⁹Ibid.

BIBLIOGRAPHY

Books

Atkinson, Rick. Crusade: The Untold Story of the Persian Gulf War. New York: Houghton Mifflin Company, 1993.

Bellamy, Chris. The Future of Land Warfare. New York: St. Martin's Press, 1987.

Bowie, Christopher, et al. The New Calculus. Santa Monica: RAND, 1993.

Brown, Neville. The Future of Air Power. New York: Holmes and Meier Publishers Inc., 1986.

Cardwell, Thomas A. Airland Combat: An Organization for Joint Warfare. Maxwell Air Force Base: Air University Press, 1992.

von Clausewitz, Karl. On War. Michael Howard and Peter Paret, eds. Princeton: Princeton University Press, 1984.

Cushman, John H. Thoughts for Joint Commanders. Annapolis: John H. Cushman, 1993.

Deighton, Len. Blitzkrieg. New York: Ballantine, 1979.

Douhet, Giulio. The Command of the Air. Translated by Ferrari, Dino. New York: Coward-McCann, 1942; reprint, Washington, D.C.: Office of Air Force History, 1983.

Hallion, Richard P. Storm Over Iraq. Washington D.C.: Smithsonian Institution Press, 1992.

An Historical Analysis of the Effectiveness of Tactical Air Operations Against, and in Support of Armored Forces. Dunn Loring: T.N. Dupuy Associates, 1980.

Horne, Alistair. To Lose a Battle: France 1940. New York: Little Brown and Co., 1969; reprint, New York: Penguin, 1984.

Mortensen, Daniel R. A Pattern for Joint Operations: World War II Close Air Support, North Africa. Washington, D.C.: Office of Air Force History and U.S. Army Center for Military History, 1987.

Slim, William Joseph. Defeat into Victory. London: Cassell and Co., 1956; reprint, London: Macmillan, 1987.

Steadman, Kenneth A. A Comparative Look at Air-Ground Support Doctrine and Practice in World War II. Study for the Commander, United States Army Combined Arms Center, 1982.

Watts, Barry D. The Foundations of US Air Doctrine, The Problem of Friction in War. Maxwell Air Force Base: Air University Press, 1984.

Warden, John A. III. The Air Campaign. Fort McNair: National Defense University Press, 1988.

U.S. News and World Report. Triumph Without Victory. New York: Random House, 1992.

White, William D. U.S. Tactical Air Power: Missions, Forces, and Costs. Washington D.C.: The Brookings Institute, 1974.

Government and Military Publications

Armed Forces Staff College. AFSC Pub 2, Service Warfighting Philosophy and Synchronization of Joint Forces. Norfolk: Armed Forces Staff College, 1992.

Department of Defense. Conduct of the Persian Gulf War. Washington D.C.: United States Government Printing Office, 1992.

Joint Chiefs of Staff. Joint Pub 1: Joint Warfare of the US Armed Forces. Washington D.C.: Joint Chiefs of Staff, 1991.

_____. JCS Pub 3-0: Doctrine for Unified and Joint Operations (test pub). Washington D.C.: Joint Chiefs of Staff, 1990.

_____. Joint Pub 3-03: Doctrine for Joint Interdiction Operations (test pub). Washington D.C.: Joint Chiefs of Staff, 1990.

_____. Joint Pub 3-09, Doctrine for Joint Fire Support (Final Draft). Washington D.C.: Joint Chiefs of Staff, 1991.

_____. Joint Test Pub 5-0: Doctrine for Planning Joint Operations (test pub). Washington D.C.: Joint Chiefs of Staff, 1991.

_____. Joint Pub 5-00.1: Doctrine for Joint Campaign Planning (initial draft). Washington D.C.: Joint Chiefs of Staff, 1992.

_____. JCS Pub 5-00.2: Joint Task Force (JTF) Planning Guidance and Procedures (test pub). Washington D.C.: Joint Chiefs of Staff, 1988.

United States Air Force. Air Force Manual 1-1: Basic Aerospace Doctrine of the United States Air Force. Vol. I. Washington, D.C.: United States Air Force, 1992.

_____. Air Force Manual 1-1: Basic Aerospace Doctrine of the United States Air Force. Vol. II. Washington, D.C.: United States Air Force, 1992.

_____. "JFACC Primer." Washington, D.C.: Deputy Chief of Staff, Plans and Operations, Headquarters, United States Air Force, 1992.

_____. TAC Regulation 55-45, Operations, Tactical Air Force Headquarters and the Tactical Air Control Center. Langley Air Force Base: Tactical Air Command, 1988.

United States Army. "Army Aviation in Desert Storm." Draft Special Report. Fort Rucker: United States Army Aviation Center, 1992.

_____. FM 1-100, Army Aviation in Combat Operations. Washington D.C.: Department of the Army, 1989.

_____. FM 6-20, Fire Support in the AirLand Battle. Washington DC: Department of the Army, 1988.

_____. FM 71-100, Division Operations. Washington D.C.: Department of the Army, 1990.

_____. FM 100-5, Operations. Washington D.C.: Department of the Army, 1993.

_____. FM 100-5, Operations. Washington D.C.: Department of the Army, 1976.

_____. FM 100-7, The Army in Theater Operations. Washington D.C.: Department of the Army, 1993.

_____. FM 100-15, Corps Operations. Washington D.C.: Department of the Army, 1989.

_____. Corps Deep Operations (ATACMS, Aviation and Intelligence Support): Tactics, Techniques and Procedures Handbook - (1990). Fort Leavenworth: Combined Arms Center, 1990.

_____. TRADOC Pam 525-5, AirLand Operations: a Concept for the Evolution of AirLand Battle for the Strategic Army of the 1990s and Beyond. Fort Monroe: United States Army Training and Doctrine Command, 1991.

_____. TRADOC Pam 11-9, Blueprint of the Battlefield. Fort Monroe: United States Army Training and Doctrine Command, 1990.

United States Marine Corps. FMFM 1, Warfighting. Washington D.C.: Department of the Navy, 1989.

_____ . FMFM 1-1, Campaigning. Washington D.C.: Department of the Navy, 1990.

_____ . FMFM 1-3, Tactics. Washington D.C.: Department of the Navy, 1991.

_____ . FMFM 2-7, Fire Support in Marine Air-Ground Task Force Operations. Washington D.C.: Department of the Navy, 1991.

_____ . FMFM 5-4, Offensive Air Support. Washington D.C.: Department of the Navy, 1979.

_____ . FMFM 5-4, Close Air Support and Close-in Fire Support. Washington D.C.: Department of the Navy, 1992.

Articles

Dahl, Ken, with Ted Kresge, and Max DeSosa. "A Responsive Air Tasking Order," The Air Land Sea Bulletin 92-4 (31 December 1992) p. 23.

Gorman, Tom. "Top Down Planning, The ATO and Close Air Support," The Air Land Bulletin 91-2/3 (30 September 1991), pp. 11 - 14

Jones, Brian W. "Close Air Support: A Doctrinal Disconnect," Airpower Journal 4 (Winter 1992), pp. 68 - 70.

Locke, Bob. "An ALO's First Warfighter," The Air Land Bulletin 92-1 (31 March 1992), pp. 12 - 13.

Palmer, Michael A. "The Storm in the Air: One Plan, Two Air Wars," Air Power History 39 (Winter 1992), pp 24 - 31.

Pivarsky, Carl. "Dangerous Doctrine," Military Review 9 (September 1993), pp. 42-51.

Sandbakken, Rolf W. "Responsive Air Support - Another View." The Air Land Sea Bulletin, no. 93-2, June 1993, 10.

Strain, Frederick. "The New Joint Warfare," Joint Forces Quarterly 2 (Autumn 1993), pp. 17 - 24.

Monographs and Papers

Blumenfield, Aaron. "AirLand Battle Doctrine: Evolution or Revolution?" Thesis. Princeton: Princeton University, 1989.

Chandler, E. D. "Aviation Liaison Officers: A Means to Enhanced Combat Power." Study Project. Carlisle Barracks: United States Army War College, 1989.

Cushman, John H. "Organization and Operational Employment of Air/Land Forces." Carlisle Barracks: U.S. Army War College, 1984.

Harley, S.D. "Maneuver Warfare and Marine Corps Aviation." Individual Study Project. Carlisle Barracks: United States Army War College, 1990.

Rippe, S. T. "Army and Air Force Issue: Principles and Procedures for AirLand Warfare: A Perspective of Operational Effectiveness on the Modern Battlefield." Master's Thesis. Fort Leavenworth: United States Army Command and General Staff College.

Russo, A. M. "Kasserine: The Myth and Its Warning for AirLand Battle Operations." Research Report. Maxwell Air Force Base: Air War College, 1985.

Sandoy, Andrew S. "The Land Component Commander: Is One Required?" Monograph for the School of Advanced Military Studies, United States Army Command and General Staff College, 1991.

Tactical Technology Center. "Translation of Taped Conversation with General Herman Balk, 12 January 1979 and Brief Biographical Sketch." Special Report. Columbus Ohio: Battelle Columbus Labs, 1979.

Interviews

Arnold, Steven L. Interview by author. November 22 1993. Tape recording with transcription in possession of the author. Washington DC.

Frederick M. Franks. Interview by author. 28 October 1993. Tape recording with transcription in possession of author. Fort Leavenworth, Kansas.

Henry, Larry L. Interview with author. 22 November 1993. Tape and transcript in possession of author. Washington DC.

Kohn, Richard H. and Joesph P. Harahan, ed. Air Interdiction in World War II, Korea, and Vietnam: An Interview with Gen. Earle E. Partridge, Gen. Jacob E. Smart, and Gen. John W. Vogt, Jr. Washington, D.C.: Office of Air Force History, 1986.

Kohn, Richard H. and Joesph P. Harahan, ed. Air Superiority in World War II, Korea: An Interview with Gen. James Ferguson, Gen. Robert M. Lee, Gen. William Momyer, and Lt. Gen. Elwood R. Quesada. Washington, D.C.: Office of Air Force History, 1983.